COMPARATIVE POLICY STUDY OF 21st CENTURY LEARNING IN BRITISH

COLUMBIA AND SINGAPORE

by

KOK HONG, TEO

B.Sc. (Hons), National University of Singapore, 2002

Postgraduate Diploma in Education (Secondary), Nanyang Technological University, 2004

M.Ed. (Science), Nanyang Technological University, 2009

A GRADUATING PAPER SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF EDUCATION

in

THE FACULTY OF GRADUATE STUDIES

(Educational Administration and Leadership)

AUGUST 2012

ABSTRACT

The object of this paper is a comparative policy study of "21st Century Learning (21CL)" by the British Columbia Ministry of Education (BCEd) and the Singapore Ministry of Education (SMOE)[1]. It aims to understand "why" and "how" 21CL came to be part of educational policies in British Columbia (BC) and Singapore and provides a descriptive analysis of the "contents" of 21CL in each jurisdiction. This paper is thus a study of the policy processes that led to the emergence and conceptions of 21CL in BC and Singapore. On a broader level, this study represents an effort to analyse the process of education policy formulation in two contextually different, high performing education systems on the global stage.

The research methodology employed in this study was documentary analysis. Through analyzing publicly available policy documents, press releases, speeches, position papers, newspaper articles, information sheets, PowerPoint presentations, as well as video clips of interviews and conferences by policy actors in both jurisdictions, the similarities, differences and tensions in 21CL policy formulation within each jurisdiction were surfaced. The findings of the documentary analysis were discussed in terms of the reform themes and goals, salience of 21CL, conceptions of 21CL, implementation issues as well as educational governance and organizational form (including stakeholder roles) in each jurisdiction. The policy actors considered in this study included political leaders, Ministry officials and for BC, education stakeholders including the BC Teachers' Federation (BCTF), BC School Trustees Association (BCSTA), BC School Superintendents' Association (BCSSA), BC Principals' and Vice Principals' Association (BCPVPA), BC Public School Employers' Association (BCPSEA), BC Confederation of Parent Advisory Councils (BCCPAC), 21CL consultants used by each jurisdiction as well as students.

This study afforded findings that may inform the work of interested education policy researchers and practitioners on two levels. On a more specialized level, the study afforded a view of 21CL and its associated issues as it is interpreted and constructed by BC and Singapore. On the more general level, learning points were also derived which bore broader relevance to education as a policy field as well as the role of politics in it.

---

[1] The views expressed in this paper are the author's and do not reflect the position of the Singapore Ministry of Education.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

GLOSSARY OF ACRONYMS

21CC - Framework for Desired Student Outcomes and 21st Century Competencies
21CL - 21st Century Learning
APEC - Asia Pacific Economic Cooperation
BC - British Columbia
BCCPAC - BC Confederation of Parent Advisory Councils
BCEd - British Columbia Ministry of Education
BCPSEA - BC Public School Employers' Association
BCPVPA - BC Principals' and Vice Principals' Association
BCSSA - BC School Superintendents' Association
BCSTA - BC School Trustees Association
BCTF - BC Teachers' Federation
C2015 - Curriulum 2015
CCE - Character and Citizenship Education
CCL - Canadian Council on Learning
CLLCT - Connecting Leaders: Learning for Changing Times
CMEC - Council of Ministers of Education
FSA - Foundation Skills Assessment
GELP - Global Education Leaders Programme
ICT - Infocomms Technology
IU - Innovation Unit
KBE - Knowledge-Based Economy
NCREL - North Central Regional Educational Laboratory
NLC - Neighbourhood Learning Centre
OECD - Organization for Economic Co-ordination and Development
P21 - Partnership for 21st Century Skills
PAM - Physical, Art and Music
PISA - Programme for International Student Assessment
PLBCG - Personalized Learning in BC: Interactive Discussion Guide
PLC - Professional Learning Communities
PTC - Premier's Technology Council
SMOE - Singapore Ministry of Education
TLLM - Teach Less, Learn More
TSLN - Thinking Schools, Learning Nation
UDL - Universal Design for Learning
UK - United Kingdom

ACKNOWLEDGMENT

To me, to acknowledge is to remember and then be grateful.

To Dr. Gerald Fallon and Dr. Marilynne Waithman, thank you for taking a chance with this student who needed to do it in a year. I could not have done it without your unwavering guidance, encouragement and humour.

To the Singapore Ministry of Education, thank you for this professional development opportunity in a top education jurisdiction in the world. I look forward to contribute in service to Singaporean education when I return.

To all former supervisors and colleagues who nurtured and inspired me, I will not be here without you.

To Pheng and Siang, thank you for making this possible.

To my parents who modelled the value of hard work and who taught me to value my education, I am forever indebted to you.

Thanks are also due to each professor who taught me and whose influence now inhabits various portions of this graduating paper in seen and unseen ways.

To Dr. Michelle Stack, who taught me to question the assumptions of my assumptions, I cannot think of a better start to my studies at UBC.

To Dr. Anne Phelan, who taught me to understand curriculum, not just develop it, you show me that a new idea is only as powerful as its teacher.

To Dr. David Coulter, who taught like a force of nature, you made my world bigger by bringing Hannah Arendt, Maxine Greene, and Nel Noddings into it.

To Dr. Larry Johnson, who showed me that theory and analogous thinking can insightfully inform practice, your wisdom and humility are admirable.

To Dr. Marilynne Waithman, who teach and embody social justice in equal measure, thank you for your example and care.

I had come to UBC on my own, but I was never alone. For this, there are many I must thank.

To Daniel, Andrea, Nathan and Ayden, thank you for your kind hospitality to a mere acquaintance.

To Chris, Maggie, Anita, Rosemary, Bing Bing, Catherine and all my other classmates, your friendship made going to class more than just going to class.

To Nelson, Brent and Zoe, thank you for your fellowship in Christ. I will miss First Baptist and our meetings.

To my Heavenly Father, you see my grateful heart.

CHAPTER 1: INTRODUCTION

The object of this paper is a comparative policy study of "21st Century Learning (21CL)"[2] by the British Columbia Ministry of Education (BCEd) and the Singapore Ministry of Education (SMOE). It aims to understand "why" and "how" 21CL came to be part of educational policies in British Columbia (BC) and Singapore and provides a descriptive analysis of the "contents" of 21CL in each jurisdiction. Thus, this paper is a study of the policy processes that led to the emergence and conceptions of 21CL in BC and Singapore. On a broader level, this study represents an effort to analyse the process of education policy formulation in two contextually different, high performing[3] education systems on the global stage (Chijioke, Barber, & Mourshed, 2010). Through the analysis of the similarities, differences and tensions in 21CL policy formulation within each jurisdiction, this study seeks to promote understanding of educational policies on two levels. On a more specialized level, the study affords a view of 21CL as it is interpreted and constructed by BC and Singapore. On the more general level, learning points derived from the study of 21CL policies in both jurisdictions but which bore broader relevance to education as a policy field as well as the role of politics in it were also distilled as a way to inform the work of interested educational policy researchers and practitioners. It should be noted that this comparative study will only focus on the policy formulation (emergence and conceptions of 21st Century Learning) and not the implementation and evaluation stages in the policy cycle. The reason for this is that these later stages for 21st Century Learning have materialized to an uneven extent in each jurisdiction and thus do not offer a basis for comparison at this point.

---

[2] This is a notion popularized, in part, by the US-based Partnership for 21st Century Skills (P21) and the Organisation for Economic Co-ordination and Development (OECD) and will be elaborated upon briefly in the next section.

[3] The OECD placed both jurisdictions among the top in the world based on their students' performance in the Programme for International Student Assessment (PISA) (Knighton, Brochu & Gluszynski, 2010).

My motivation to embark on this study is influenced by my location as a Singaporean educator with an interest in understanding the education policy formulation of top performing education systems in the world (Chijioke, Barber, & Mourshed, 2010). This consideration had influenced my decision to choose Canada to pursue further studies in Educational Administration. Before coming to BC, I had been serving in the Singapore Education Service for seven years, having been a high school Chemistry teacher, a Subject Head for both academic and non-academic programmes in the same high school, and a special assistant to the Zonal Director of North Zone schools in the Schools Division of the Singapore Education Ministry. My last posting offered me some beginning exposure to education policy formulation in Singapore. As a student of Educational Administration and as an educator, it is of deep professional interest to me to understand the education policy formulation processes of the BC system with the aim of deriving lessons that may find application in my work as an educator in Singapore.

RATIONALE OF RESEARCH

Building on the introduction, this section will espouse the rationale for the current research study by first situating 21CL as a site for educational policy research. This will be followed by a similar treatment that locates BC and Singapore as suitable candidates for a comparative policy study on 21CL.

Situating 21st Century Learning as a site for Educational Policy Research

Globally, the burgeoning interest amongst nations in the notion of "21st Century Learning", which is used interchangeably with the term "21st Century Skills and Competencies", is partly due to the emphasis given to it by the Partnership for 21st Century Skills (P21) and by the Organization for Economic Cooperation and Development (OECD). In particular, the latter plays an increasing role in influencing the agenda of national

education policies (Rawolle & Lingard, 2008). OECD published an education paper in 2009 which included summaries of the teaching and assessment of "21st Century skills and competencies" in 16 OECD jurisdictions (of which BC and Singapore are absent). The paper essentially presented a "21st Century skills and competencies" framework and endorsed the importance and relevance of 21st Century Learning in education from their study of the 16 OECD jurisdictions (Ananiadou & Claro, 2009).

Various notions of 21st Century skills and competencies exist (Partnership for 21st Century Skills, 2008, Ananiadou & Claro, 2009, 21st Century Learning Initiative, 2010). Broadly and briefly, they emphasize skill sets and competencies that are regarded as essential for the needs of the knowledge economy. The knowledge economy is defined by Powell and Snellman (2004) to be "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence" (pp. 199). In the same vein, the OECD characterises the knowledge economy as that which is directly based on the production, distribution and use of knowledge and information, as reflected through growth in high-technology investments, high-technology industries, more highly-skilled labour and associated productivity gains (OECD, 1996).

With the short shelf-life of knowledge, Powell and Snellman (2004) argue that the key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources. As such, the knowledge economy demands that education should focus on cultivating lifelong learning capacities in students such that they are able to take charge of their own continual learning to develop "conceptual understanding of complex concepts" and use them to "creatively generate new ideas, new theories, new products and new knowledge" (OECD, n.d., pp 1). Students need skills that will allow them to negotiate the globally competitive work and life environments of the 21st Century. These environments are characterised by an easy access to an abundance of information; rapid

3

changes in technology tools; and the ability to collaborate and make individual contributions

on an unprecedented scale (Partnership for 21st Century Skills, 2009). Table 1 and 2 in

Appendix I on page 133 summarise the purported 21st Century knowledge, skills and

competencies students require according to P21 and the OECD respectively. Table 1 below

summarises the common themes and differences reflected in both models.

Table 1: Comparison of 21st Century Learning/Competencies Framework by P21 and the OECD (P21, 2008, Ananiadou & Claro, 2009)

Similarities: Common Themes	Differences
Information and Media Literacy: An emphasis on the ability to effectively negotiate life and work contexts where abundant information is easily accessible.	P21 delineates that the development of 21st Century Skills must build on a base of core academic subjects that incorporates 21st Century interdisciplinary themes. **Core subjects** include i. English/Reading/Language arts, ii. World Languages iii. Arts iv. Mathematics v. Economics vi. Science vii. Geography viii. History ix. Government and Civics
Cognitive Skills: An emphasis on the ability to think critically and creatively for problem solving, innovation and knowledge creation.	
Social Skills: An emphasis on the ability to lead, communicate and collaborate effectively in highly heterogeneous groupings.	**21st Century interdisciplinary themes** include i. Global Awareness ii. Financial, Economic, Business and Entrepreneurial Literacy iii. Civic Literacy iv. Health Literacy v. Environmental Literacy
Skills for Personal Effectiveness: An emphasis on the ability to be self-directed, adaptable, technologically savvy, productive as well as responsible individuals and involved citizens.	

Situating BC and Singapore as candidates for Comparative Policy Study on 21CL

Like many other jurisdictions, BC and Singapore have also taken steps towards reforming their education systems for 21st Century Learning and are viable candidates for a comparative study of 21CL policies for three reasons. Firstly, both jurisdictions have only been advancing 21CL as an area of educational reform very recently and can be regarded to be at comparable points in their development of 21CL policies. Secondly, the comparison between BC and Singapore is also justified in part by how both systems have drawn from the P21 framework for 21st Century Learning (Partnership for 21st Century Skills, 2008) and related OECD documents as part of the sources in their conceptualisation of 21st Century Learning/Competencies. Thirdly, as have also been mentioned, both BC and Singapore are recognized to have high performing education systems. This is despite their contrasting contextual differences. For instance, the Singapore system is highly centralised and serves around 511,000 students of predominantly 4 major ethnic groups in 356 schools over a geographic area of 712.4 km^2 that is 100% urban (SMOE, 2011a). The majority of students sit for high-stakes national examinations at the end of Grade 6 and Grade 10. These examinations are taken seriously by schools and stakeholders as they are used for merit-based placement and hold consequences for the progression of students in the system. About one third of each age cohort also sits for university entrance examinations at the end of Grade 12. BC has a more decentralised system that serves 650,000 students of diverse ethnic backgrounds in 1610 schools in 60 school districts. These schools are spread around a land area of 950,000 km^2 that includes urban and rural areas (BCEd, 2011a). Though province-wide assessments like the Foundation Skills Assessment (FSA) are administered at Grades 4 and 7 and Language Arts Exams are administered at Grades 10 and 12, the assessments are intended to be used for informing and improving teaching and learning (BCEd, 2011c).

That comparable, excellent system-wide outcomes are achieved despite the aforementioned differences in BC and Singapore present the rich possibility for the two systems to learn from how each had fostered a culture of high educational performance. By researching how both jurisdictions are interacting with the very current issue of 21CL, this study seeks to unpack this possibility for learning through the lens of policy formulation in BC and Singapore.

RESEARCH PURPOSE

Against the backdrop described in the previous section, the specific objectives of this research study are to analyse the following:

1) **The *emergence* of "21st Century Learning" as an area of policy interest in BC and Singapore, with a focus of how and why it gained attention within each jurisdiction.** This will be accomplished via analyses of the impetus and salience of 21CL through a consideration of the local and global contexts within which each jurisdiction is operating.

2) **The *conceptions* of "21st Century Learning" in BC and Singapore, with a focus on the content (i.e. the *what*) of 21CL and how it is envisaged to be implemented within each jurisdiction.** This will be accomplished through analyses of the guiding principles of policy formulation, the content of 21CL, policy instruments for its proposed implementation, as well as the analysis of the role and rationalities of different education stakeholders around what it should entail and why.

The data employed in this study are publicly available documents including policy documents, press releases, speeches, position papers, newspaper articles, information sheets, PowerPoint presentations, as well as video clips of interviews and conferences by policy actors in both jurisdictions that are relevant to 21CL. These policy actors include political

leaders, Ministry officials and for BC, education stakeholders including the BC Teachers'
Federation (BCTF), BC School Trustees Association (BCSTA), BC School Superintendents'
Association (BCSSA), BC Principals' and Vice Principals' Association (BCPVPA), BC
Public School Employers' Association (BCPSEA), BC Confederation of Parent Advisory
Councils (BCCPAC), 21CL consultants used by each jurisdiction as well as students.

SIGNIFICANCE OF RESEARCH

As mentioned under the introduction to this paper, this comparative study of the
education policy formulation processes of the BC and Singapore education system affords a
view of 21CL as it is interpreted and constructed by BC and Singapore. It also offers broader
learning points derived from the study of 21CL policies in both jurisdictions which bore
relevance to the field of educational policy and the role of politics in education. To parties
with an interest in educational policies, it is hoped that the insights and learning derived from
this study may come in the form of relevant practices that can be emulated in their
workplaces. Where practices are not directly transferrable or adaptable, the thinking behind
them can also offer insights to inform the work contexts of the reader. In short, the
uniqueness of the contexts of BC and Singapore should not be a hindrance for learning to
transpire.

Beyond policy analysis, this comparative study also contributes in a small way to
existing literature on 21st Century Learning. The experiences of BC and Singapore in policy
conceptualisation related to "21st Century Learning" may be of interest to policy makers and
educators involved in curriculum planning in this burgeoning area of curriculum
development.

CHAPTER 2: LITERATURE REVIEW

Conceptual Framework for Comparative Policy Study

Rose (1972) suggested that a basic reason for conducting comparative policy studies is that it injects a variety of perspectives into policy formulation without which policies may be at risk of being informed by overly uniform and insular considerations. Iris & Laurence (1998) echoed Rose when they cited that, among other reasons, information sharing through comparative studies of policies facilitated "transferring", "borrowing" or "lesson-drawing" across countries for interested policy makers.

In the ensuing sections, the concepts of policy, policy analysis and the theoretical framework adopted for this study will be reviewed. For the purposes of addressing research objectives 1 and 2 of this study, the *policy analysis* model developed by Haddad and Demsky (1995) will be adopted to analyse the emergence and conceptions of "21st Century Learning" policies by MOE BC and Singapore. The framework used in this study is suitable because it balances the consideration of the linear, ends-means logic of approaching policy formulation with the acknowledgment that policy formulation is also a subjective process contingent on the politics and power dynamics of policy actors.

Notions of Public Policy

A range of definitions for policy exists within current literature. Dye (1972, as cited in Howlett, Ramesh & Perl, 2009) defined public policy as simply "anything that a government chooses to do or not to do" (pp. 4). However, such a definition accentuates the agency of the government in making deliberated choices in public policy formulation but offers little insight into the processes of decision making. On the other hand, Jenkins (1978, as cited in Howlett, Ramesh & Perl, 2009) highlights the central relevance of the ideas and knowledge possessed by policy actors that come to bear on public policy decisions in his definition of

public policy as a "set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where those decisions should, in principle, be within the power of those actors to achieve" (pp. 7). This second definition of policy acknowledges that policies are subject to the political process of representation and control, and are thus necessarily value-laden (Simeon, 1976). Haddad and Demsky (1995) defined policy to be an explicit or implicit single decision or group of decisions which may set out directives for guiding future decisions, initiate or retard action, or guide implementation of previous decisions. While this definition does not invoke the politics involved in policy formulation explicitly, Haddad's reference to the explicit and implicit decision making involved in policy is aligned with his views (as set out in his model of policy analysis that will be discussed in greater detail later) that, amongst other factors, policies are formulated within a context of values that policy actors bring through their organizational and personal agenda. Reflecting along a postmodern view of policy formulation, Ball (2005) goes further to define policy as both text and discourse. As a text, policies are seen as "representations which are encoded in complex ways (via struggles, compromises, authoritative public interpretations and reinterpretations) and decoded in complex ways (via actor's interpretations and meanings in relation to their history, experiences, skills, resources and context)" (pp. 44). In other words, for any policy text a plurality of readers must necessarily produce a plurality of readings' (Codd, 1988, as cited in Ball, 2005, pp. 44). On the other hand, policy as a discourse focuses on what policy makers think about; the way they relate between thought and action; exercise power in the production of "truth" and knowledge; as well as miss and fail to attend to what they do not think about (Ball, 2005). Discourses not only represent the social realities embodied by the policy but also create them (Nudzor, 2009). While making some ways of saying and doing possible, it makes other ways of saying and doing difficult and sometimes even impossible

(Biesta, 2006). Thus, discourses construct and limit the range of possibilities available to think about a policy and hence constrain their discursiveness.

Models of Policy Analysis

With an understanding of the notions of public policies that exist in the literature, the attention is now turned to how public policies may be subjected to systematic analysis by a consideration of models of policy analysis from a theoretical perspective.

Notions of Policy Analysis

Conceptually, policy formulation can be seen as falling on a spectrum. On one end of this spectrum is a view of policy making as following an instrumental, means-end approach (Howlett, Ramesh & Perl, 2009). This view presupposes that rational analysis will lead to an objective policy that when implemented accordingly, will afford intended outcomes. On the other end of this spectrum is the view that policy formulation is a political process characterised by the power dynamics surrounding policy actors and is thus best understood through "subjective reflection, normative analysis and argumentation" (Howlett, Ramesh & Perl, 2009, pp. 26). Within this view, policy formulation is regarded as determined by such factors as the power and legitimacy of policy stakeholders (Mitchell, Agle & Wood, 1997), the discourses deployed and the ideologies that influence the policy (Dryzek, 2002). In reality however, policy formulation is neither purely one nor the other. As Levin (2001) points out, while policy is certainly driven in important ways by a linear, means-end rationality, the high level of ambiguity and contingency in every aspect of the political policy process cannot be ignored.

All models of policy analysis use some version of stage theory which invariably involves the stages of problem identification; the adoption of strategies; policy implementation as well as policy evaluation (Howlett, Ramesh & Perl, 2009). However, Levin (2001) suggests it is important to remember that although the division into component parts is useful for analytical purposes, policy formulation is not neatly divided in this way in reality; none of the descriptors for each stage adequately represent the complexities involved.

Policy Analysis Model Used by this Study

For this study, Haddad and Demsky's (1995) model of policy analysis will be used to analyse the "21st Century Learning" related policies of BCEd and SMOE. Appealing to the sequential nature of instrumental means-ends logic, Haddad and Demsky break down the policy cycle into seven stages. This allows for the policy formulation stages, which are the focus of this study, to be separated out for analysis. More importantly, Haddad and Demsky's model is suitable for the purposes of this study because it balances the linear means-end rationality of policy formulation with an appreciation of how policy formulation is ultimately a political process involving a variety of people and organizations with diversified perspectives.

Haddad and Demsky's model is elaborated below. For completeness' sake, all stages in the policy analysis model will be elaborated upon even though the interest of this study is only in the stages pertaining to policy formulation.

11

Haddad and Demsky's (1995) Model of Policy Analysis

This model comprises seven stages. The first four stages deal with policy formulation, the fifth with implementation planning and the final two with policy adjustment. The stages in this model are elaborated below. This will be followed by Table 2, which is a summary of the guiding questions that frame the first four policy formulation stages.

(i)   <u>Analysis of the existing situation</u>

     Haddad is of the view that any educational policy change must begin with an appreciation of its social context, including political, economic, demographic, cultural, and social issues which are likely to affect decision making and implementation processes within the education sector. One key socio-political factor to analyse is the presence and relative strength of interest groups. Policy makers therefore need to identify stakeholders and assess their openness to reform. Additionally, an analysis of the education sector is also relevant. According to Haddad, this should include a consideration of the historical and evolutionary perspective on the dynamics of educational policies across time as it allows a better sense of why a particular policy is being advocated at the moment.

(ii)   <u>The process of generating policy options</u>

     According to Haddad, new policies are usually introduced to accommodate the disequilibrium arising from a problem, a political decision or a reorganization scheme caused by overall national planning. Within this context, policy options can be grouped under four modes: systemic, incremental, ad hoc and importation.

     Systemic: This mode of generating policy option is mainly data-driven. Data are drawn from sector analysis and the existing body of professional knowledge

including conventional wisdom, research synthesis and comparative indicators. A large number of options are generated and the most optimum one is adopted. Some of the policy options may be subjected to a micro-cycle of problem identification through policy formulation followed by verification and modification or retention. Pilot studies may be conducted to strengthen the rigor of the process. The drawback of the systemic mode is that the options generated may be limited by the unique situation of the educational sector and its associated social contexts. Of great significance is also the power dynamics of the different stakeholder groups in influencing the priorities given to options generated.

Incremental: Options generated under this mode are usually as a direct response to a problem identified in education, especially if it involves widespread public attention and debate. The system is forced to react to maintain its legitimacy. Such problems are usually localised and not system wide and thus changes are incremental.

Ad Hoc: The impetus for this mode comes from outside the education sector. The impetus could be a problem, the emergence of a new elite or major political event that demands a response from the education sector.

Importation: This mode refers to policy options that are considered due to the advent of trends in the educational systems around the world. The impetus for this mode may come from consultants and specialists based in international agencies.

(iii)   <u>Evaluation of policy options</u>

Future scenarios are constructed from the policy options vis-à-vis the present reality and the implications of each is compared and evaluated based on their desirability, affordability and feasibility.

Desirability: This involves a consideration of three dimensions. Firstly, the impact of the policy option on stakeholders, with a view of the multiplicity of interests involved and the trade-offs that different groups may bear. Secondly, the compatibility of the policy option with the dominant ideology and targets of economic growth articulated in national development plans. Lastly, in some cases, the impact of the policy option on political stability and development.

Affordability: This involves a consideration of the fiscal costs of the change as well as the social and political costs. This is important due to the vulnerability of educational expenditures to economic growth trends and political objectives.

Feasibility: This involves a consideration of the implementation capacity of the education system. It includes a consideration of the readiness of the human resources; the time frame for the policy to be implemented; as well as the sustainability over a period of time for the policy to bear results. With regard to the last point, the long-term implications of policy options should be weighed against the backdrop of larger educational policies and its consistency with long-term national aspirations.

(iv)   <u>Making the policy decision</u>

According to Haddad, "rarely would a policy decision be the considered consequence of the evaluation and previous stages of the decision process – the culmination of a process during which all information relevant to the decision was gathered and carefully analysed so that a totally optimal policy might be designed and selected" (Haddad & Demsky, 1995, pp. 34). Haddad is of the view that the variety of conflicting interests and rationalities requires that any policy decision is necessarily a bargained result which would entail trade-offs among these interests. In addition, he cites political pressures, oversights in evaluation, or the simple pressure of time as factors that may short circuit the policy formulation process. Before making the policy decision thus, the following questions should be examined to evaluate the soundness of the policy making process up to the decision making point:

How was the decision made – did it go through all the stages of policy analysis?

How radical a departure is the decision from current policy?

How consistent is this decision with policies of other sectors?

Is the policy diffusely articulated or is it stated in a manner which is easily measurable?

Does the policy seem operational or is its implementation implausible?

(v)   <u>Planning policy implementation</u>

Haddad is of the view that this is the stage that lends concreteness to many of the issues discussed during the earlier phases of policy planning. Apart from the planning of time lines for action as well as the planning and allocation of the requisite human, material and financial resources, Haddad suggested that the most

15

challenging task in the planning of implementation lies in the amassing of political support from both providers and consumers of the proposed policy. He pointed out that involvement of stakeholders in the planning of implementation is crucial to this process, but more importantly, to improve policy design. According to Haddad, there will always be unforeseen developments that will modify implementation plans and he recommended pilot studies before full implementation to be a good practice to ensure successful implementation.

(vi)   <u>Policy impact assessment</u>

The policy may be assessed at an appropriate juncture after implementation. Haddad pointed out two main considerations for quality policy impact assessment. Firstly, he highlighted the importance of timing in policy impact assessment. Haddad maintained that it is important to avoid premature assessment but to let a few teaching cycles transpire so as to evaluate the actual impacts of the policy change. Secondly, Haddad argued that it was important to discern if policy outcomes were attributed to flawed policy design or poor policy implementation. If it was the former, then the policy needed to be re-examined by repeating the seven policy analysis steps. If it was the latter, follow up actions would focus on addressing implementation gaps instead.

(vii)   <u>Subsequent policy cycles</u>

According to Haddad, the policy formulation process should ideally be iterative and thus never concluding. This is because once policy outcomes are available, a new policy cycle of formulation, planning and evaluation commences. He noted however that long term policy planning and analysis is uncommon and the policy

cycle is usually broken. Instead, policy outcomes are usually analysed as a "*stock taking exercise*" (Haddad & Demsky, 1995, pp. 38) concerned ultimately with collecting evidence to verify the effects of the policy and to wrap up the policy initiative.

Summary of Policy Analysis Model used in this Study

To summarize, research objectives 1 and 2 which seek to analyse the emergence and conceptions of the educational policy of "21st Century Learning" in BC and Singapore will be addressed by relying on the relevant policy formulation stages of Haddad's policy analysis model. This is summarised in Table 2 below.

Table 2: Summary of guiding questions framing relevant stages of Haddad & Demsky's policy analysis model

Stage	Guiding Questions
Analysis of the existing situation	• What issue does the new policy seek to address? • Why and how did the issue gain importance? • In what contextual backgrounds were discussions of the issue occurring (e.g. socio-economic, political, demographic, cultural and educational contexts)?
The process of generating policy options	• What were the policy options suggested for the issues? • How were the policy options in dealing with the identified issues formulated? • Who were the main policy actors trying to influence the policy process? • What were the reasons used by various policy actors for supporting (or not) the identified issues and corresponding policy options?

CHAPTER 3: RESEARCH METHODOLOGY

Given that the purposes of this study is to analyse the context and process that led to the emergence and conceptions of 21st Century Learning policies put forth by BCEd and SMOE as a means to understand their education policy formulation processes, it operationalizes as a retrospective analysis of the development of the policy from its emergence to its conception. In pointing out that educational policies necessarily arose in particular social, economic, political and institutional contexts, Levin (2001) also mentioned that the way any policy emerges, is conceptualized and is adopted is shaped significantly by previous events and practices in a given jurisdiction. The unique local and global historical factors coming to bear on education is thus also an integral part of this analysis of the emergence of the 21st Century Learning policy in BC and Singapore. In order to retrospectively trace and analyse the development of the policy from its emergence to its current state, this study will primarily rely on publicly available documents involving policy actors[4] for its data. The selection of documents will be based on their relevance to 21CL according to the guiding questions posed in Table 2. The study thus harnesses documentary analysis as its research methodology. As such, the ensuing sections will present an overview on the theoretical underpinnings of documentary analysis as a research method. It will begin by looking first at notions of document as a theoretical construct.

Notions of Document

Documents consist of public and private records that provide valuable information in helping researchers understand central phenomena in qualitative studies (Creswell, 2012). Documents may take the form of policy reports, committee papers, public treatises, works of fiction, diaries, autobiographies, newspapers, magazines and letters (McCulloch, 2004).

---

[4] See research purpose on page 6 for details.

Defining documents as artefacts which have as their central feature an inscribed text (Scott, 1990, as cited in McCulloch, 2004), documents represent ready sources of text data for a qualitative study with the advantage of being in the language and words of their authors, who have usually given thoughtful attention to them (Creswell, 2012). On the other hand, Prior (2003) cautions against thinking that documents are stable, static and pre-defined artefacts. He pointed out that the "definition of a document depended not so much on features intrinsic to their existence, nor on the intentions of their makers, but on factors and processes that lay beyond their boundaries" (pp. 2). Thus, it is also important to consider a document as a product produced by humankind in socially organised circumstances. In so doing, Prior (2003) suggests that the processes and circumstances in which a document is manufactured needs to be studied as well.

Primary and Secondary Sources of Documents

In using documents as data in research, a dichotomy is drawn between primary sources and secondary sources. Discussing this dichotomy in the context of literature review, Creswell (2012) defines primary literature to be documents reported by the individual(s) who actually conducted the research or who originated the ideas. Thus, primary sources present the literature in the original state and present the viewpoint of the original author. Secondary sources on the other hand constitute literature that summarizes primary sources. It does not represent material published by the original researcher or the creator of the idea. Approaching the "primary" and "secondary" dualism from the perspective of historical research, McCulloch (2004) echoes Creswell's method of distinction in his description that primary sources constitute the "basic, raw and imperfect evidence" (pp. 30) while secondary sources are coherent works of history, article, dissertation or book by others which may be summaries or commentaries (e.g. autobiographies which seek to analyse the times through which the author has lived) based on primary sources. The use of primary sources in the form of

government documents, press releases and speeches etc. will be central to the purposes of this study as it offers first-hand data for analysis. Where primary sources are unavailable, secondary sources of documents in the form of relevant research literature or books pertaining to the historical and contemporary aspects of the educational contexts of BC and Singapore will also be used for purposes of filling information gaps as well as for triangulation[5] of analysis.

Approaches to Documentary Analysis

Documentary studies have a wide range of use in social research, including education. As an area for documentary analysis, education is interesting and useful not just because of its role in incorporating and transmitting cultural heritages and traditions but also because it is a major feature of social and economic policies of modern societies (McCulloch, 2004). Documentary analysis provides a way to study how historical factors in education related with contemporary policies and offers evidence for continuity and change in educational ideals and practices (McCulloch, 2004) in a jurisdiction.

Jupp and Norris (1993, as cited in McCulloch, 2004) point out that there are three theoretical approaches with which to interpret a document: positivist, interpretive and critical. These three approaches are recounted below.

According to Halstead (1988, as cited in McCulloch, 2004), the positivist approach emphasizes the objective, rational, systematic and quantitative nature of documentary study. In order to be objective and thorough, different sources of documents pertaining to the issue under study must be compared and cross-referenced with the assumption that the sum of all the relevant papers will add up to an objective account. The limitation of this approach is that

---

[5] Triangulation is discussed in a later section on page 25.

little attempt is made to provide analysis in terms of differential power, influence or ideologies of the various groups that these documents represent.

On the other hand, Codd (1988, as cited in McCulloch, 2004) suggested an interpretive approach which stresses the nature of social phenomena like documents as being socially constructed. According to Codd, many educational policy documents are constructed from a technical-empiricist approach in which policy statements and documents relate the values and goals of education policy to factual information arising from research. The analysis of the documents based on this perspective sets out to establish the correct interpretation of the text. To Codd, "the technical-empiricist approach is founded on mistaken idealist assumptions about the intentions of policy and the character of language, which are themselves founded on a liberal humanist ideology that tends to obscure the contradictions underlying state policies" (Codd, 1988, pp. 237, as cited in McCulloch, 2004). As an alternative, he emphasizes theories of discourse that relate the use of language to the exercise of power, and suggests an analytical approach that deconstruct the official discourse as "cultural and ideological artefacts to be interpreted in terms of their implicit patterns of signification, underlying symbolic structures and contextual determinants of meaning" (Codd, 1988, pp. 243, as cited in McCulloch, 2004). Along the same vein, Prior (2003) explains that in analysing a document, it is important to dismantle the assumptions, concepts and ideas that reflect on the agents who produced the document and the document's intended recipients, as much as upon the document's content. This is because "what is counted and how it is counted are expressive of specific and distinctive ways of thinking, acting and organizing" (pp. 48), which itself is determined by the operation of power.

Flowing from the preceding discussion, an important aspect of analysing documents through the interpretive frame is through critical discourse analysis, wherein policy texts are regarded as discourses. Discourses embody the meaning and use of propositions and words

(that is, the way ideas are expressed) and refer to language as a social practice by social structures (Nudzor, 2009). Critical discourse analysis assumes that discourse practices mediate the connection between texts and society or culture (Fairclough, 1995, as cited in Stack, 2006) and its aim is to "make the implicit explicit and in so doing, to uncover how discourse makes that which is based in ideology appear neutral and commonsensical" (Stack, 2006, pp 52). A limitation of discourse analysis is the lack of any criteria to decide between the validity of competing arguments presented by the discourses (Howlett, Ramesh & Perl, 2009).

The third approach to documentary analysis is the critical approach. This approach to documentary analysis is not relevant for the present study but is included under this section for the sake of completeness. According to McCulloch (2004), this approach is both heavily theoretical in that it includes, but is not limited to, the use of Marxist and feminist theory and in that it is overtly political in nature with its strong orientation towards social conflict, power, control and ideology. As an example, he quoted the work of Purvis (1985, as cited in McCulloch, 2004) who embarked on a feminist, historical documentary research. The study aimed at challenging male definitions of knowledge by exposing and questioning the sexist assumptions of "malestream" academic disciplines so as to promote awareness of the experience of women in the past and in the present. A potential constraint of the critical approach is that it bears limited relevance for research questions falling outside its area of focus. **Table 3** summarises the different approaches to documentary analysis:

Table 3: Approaches to Documentary Analysis

Approach	Description
Positivist	• Focuses on building an objective, rational, systematic account by comparing and cross-referencing different sources of documents • Little attempt on analysis of differential power, influence or ideologies of authors of documents
Interpretive	• Focuses on unmasking assumptions, concepts and ideas of discourses used by authors of documents • Lack of any criteria to decide between validity of competing discourses
Critical	• Focuses on the use of theories that are overtly political, e.g. Marxist and Feminist theories, to interpret documents with an orientation towards social conflict, power, control and ideology • Limited relevance for research questions falling outside its area of focus

For the purposes of this study, the complementary approaches of analysing documents from the positivist and interpretive perspectives will be used. These two approaches are suitable as they are in essence aligned with Haddad's model of policy analysis which balances the rational and political nature of policy formulation. To guide the analysis of documents using the positivist and interpretive perspectives by Haddad's model of policy analysis, the guiding questions presented in Table 2 on page 17 is further broken down into codes with which to facilitate the analysis and to organize the findings into emergent themes. The codes used and their attendant definitions are summarised in Table 4 on the following page. Coding analysis for this study was performed with the help of the qualitative data analysis and research software, ATLAS.ti 6.2. From the coding analysis, the findings from BC and Singapore were organized into the themes of impetus for reform, salience of 21CL, guiding principles for policy formulation, conceptions of 21CL, implementation considerations, as well as stakeholder responses. These will be presented in the two following chapters on the findings from BC and Singapore respectively.

Table 4: Codes and Coding Definitions

Stage/Mega Code	Guiding Questions	Codes	Coding Definition
Analysis of the existing situation	• What issues does the new policy seek to address?	• Issues addressed	• Issues for which 21st Century Learning policies are a response/solution.
	• Why and how did these issues gain importance?	• Salience of issues	• Factors that legitimize issues as deserving attention.
	• In what contextual backgrounds are discussions of the issues occurring: socio-economic, political, demographic, cultural and educational contexts?	• Contextual diagnosis analysis • Socio-economic context • Political context • Demographic context • Cultural context • Educational context	• Consideration of issue using • Background socio-economic data/information • Background political data/information • Background demographic data/information • Background cultural data/information • Background educational data/information
The process of generating policy options	• What are the policy options suggested for the issues?	• Policy Options • Conceptions of learner and learning • Conceptions of teacher and teaching	• Proposed policy options as it pertains to various aspects of education and the education system

		• Conceptions of school and community • Conceptions of role of family in learning • Conceptions of supporting systems	

	• How were the policy options in dealing with the identified issues formulated?	• Formulation of options
		  • Educational Research
		  • Consultation with stakeholders
		  • Other strategic[6] considerations
			• Factors considered in formulation of policy options

	• Who are the main policy actors trying to influence the policy process?
	• What are the reasons used by various policy actors for supporting (or not) identified issues and corresponding policy options?
		• Stakeholder position
		  • Students
		  • BCTF
		  • BCCPAC
		  • BCSSA
		  • BCSTA
		  • BCPVPA
		  • BCPSEA
			• Stakeholder rationality and influence as evidenced through views expressed by each stakeholder group through the documents analyzed

---

[6] These were other factors that were also considered by policy makers as important in achieving the goals of the identified policy options which fell outside the categories of educational research and consultation with stakeholders.

Triangulation in Documentary Analysis

In order to ensure that any findings emerging from the documentary analysis is reliable, it is necessary to make use of a range of documentary sources that can be used to triangulate different documents against each other. The process of triangulation is a means of checking insights drawn from different sources of data in order to gain a deeper and clearer understanding of the situation and the people involved (Taylor & Bogdan, 1998, as cited in McCulloch, 2004).

It is possible to perform triangulation via a combination of documentary and non-documentary sources, that is, via mixed-methods research (Creswell, 2012). For instance, documentary evidence may be tested with information derived from interviews with stakeholders that have relevance to the topic under research. However, as the purpose of this study is to establish an initial comparison of educational policy formulation processes in the form of the emergence and conceptions of 21CL in BC and Singapore which can form the basis for further investigation, it will focus on building an account based on documentary evidence at this stage. Interviews with relevant stakeholders may be pursued as further research in future studies. In this sense then, the present study can also be seen as a documentary review. Triangulation will thus be carried out using solely documentary sources.

Legal and Ethical Concerns of Documentary Analysis

A potential legal concern and its associated ethical concern arising from documentary analyses are issues of copyright, freedom of information and data protection. Considerations of confidentiality of information and the intellectual ownership of data are sensitive issues that must be clarified at an early stage of the research (McCulloch, 2004). As this study will employ publicly available documents for its analysis, concerns over confidentiality will be minimal.

Intellectual ownership of the documents will be recognized through formal citation where relevant.

A further ethical concern that may arise occurs when the researcher may be constrained from interpreting the documentary material in an unfavourable way due to his or her own association to the organization in study (McCulloch, 2004). In such a situation, if documents are used to question the practices or role of the institution, the researcher may be in a difficult position. Such a situation is averted in the circumstance of this study for two reasons. Firstly, the epistemological posture of this study is to document and understand the phenomena of education policy formulation processes in BC and Singapore, it is inherently descriptive rather than evaluative in nature. Secondly, as discussed under the rationale for research, this study is conducted in the spirit of learning about good practices that can be emulated or adapted for improvement in education policy practices. Conflating the two reasons, criticisms of either jurisdiction is not the focus and will not be a part of the study. This study will come at its topic in a critical but constructive manner, adopting as its working principle the philosophy underpinning appreciative inquiry[7] (Whitney & Trosten-Bloom, 2003).

LIMITATIONS OF THE STUDY

An important limitation of this study was my positionality as a foreigner to the BC education system. My different cultural background compromised my ability to discern the tacit meaning that might be implied in the text of the documents I had analysed. My lack of an intuitive grasp of the broader ethos of the educational environment in BC would have also

---

[7] This is an organizational developmental approach that seeks to effect positive changes from a position of appreciation and affirmation rather than from a deficit stance that begins with questioning what is wrong or deficient.

impeded my ability to derive a holistic understanding from the analysis. In this respect, the expert guidance of my professorial mentors had been critical in mitigating my blind spots.

A further limitation of the study is the uneven availability and accessibility of documents from the jurisdictions in this study. Every effort had been made to uncover as many publicly available documents as possible from both jurisdictions. The availability and accessibility of documents was especially important for triangulation of data, without which the reliability of the documentary analysis would be weakened. To partly mitigate this limitation, efforts were made to search for and utilize secondary documentary sources in the research literature concerning historical and contemporary educational developments in Singapore and BC that may find relevance for the purposes of this study. This had hopefully ensured a more rigorous and comprehensive study.

CHAPTER 4: FINDINGS – BRITISH COLUMBIA

This section summarizes the findings on the emergence and conceptions of 21st Century

Learning (21CL) related policies in BC. The section will begin with the impetus for educational

reform, followed by the principles (as inferred from the study) that influenced formulation of

policy options. The rationale for the salience of 21CL notions from these policy considerations

will then be analysed. Next, the conceptions of 21CL will be presented, together with a

description of the supporting policy instruments proposed for implementing 21CL in BC. The

section will end with an account of the position of various education stakeholders in relation to

the proposed 21CL policies in BC.

"Modernization of the Education System" as Impetus for Reform

As surfaced from the documentary analysis, the impetus for reform stems from the need

to modernize the education system to better prepare students for the fast changing world driven

by the knowledge economy. This is a common theme found in the BC Education Plan (BCEd,

2011e), the "Personalized Learning in BC: Interactive Discussion Guide" (PLBCG) (BCEd,

2011d), the Premier's Technology Council (PTC) report on "A Vision for 21st Century

Education" (2010), as well as press releases from the BCEd (Abbott, 2011) and the throne

speeches of 2010 and 2011 (Point, 2010, Point, 2011).

In its foreword, the PTC Report (2010) recommends that the education system must

"transform to properly serve the citizens of a knowledge-based society". It explains that "the

fabric of a knowledge-based society is built around individuals with the ability to use

information and continuously adapt to a rapidly changing globe" (pp. 1). The theme of

modernization also connects the 2010 and 2011 Throne Speeches (Point, 2010, Point, 2011):

> Several significant reforms will be advanced to modernize our education system for the 21st Century. New emphasis will be placed on parental involvement and on tailoring our education system to each child's individual needs, interests and passions. New forms of schooling will be developed to provide greater choice and diversity, centered on students' special interests and talents. Smarter approaches will allow more resources to be focused on students' learning needs while less is spent on administrative costs. In concert with local governments, Neighbourhood Learning Centres will integrate neighborhood needs with available capital resources and under-utilized spaces (Point, 2010, pp. 21).

> Students need skills that will allow them to adapt to a world that is changing more quickly than ever before. These skills can be taught by our teachers, but not using a 20th century curriculum with 20th century teaching methods[8]. Over the coming weeks, my government will introduce a series of important changes to improve the skills of our current teachers and ensure that future teachers are provided with the tools they need to produce first-class graduates (Point, 2011, pp. 17).

Echoing the preceding documents, the BC Education Plan launched by the Ministry of Education in October 2011 summarizes aspects of the education system that needed "modernization" to allow students to benefit from the knowledge economy:

> BC's Education Plan responds to the realities and demands of a world that has already changed dramatically and continues to change…. our education system is based on a model of learning from an earlier century. To change that, we need to put students at the centre of their own education. We need to make a better link between what kids learn at school and what they experience and learn in their everyday lives. We need to create new learning environments for students that allow them to discover, embrace, and fulfil their passions. We need to set the stage for parents, teachers, administrators and other partners to prepare our children for success not only in today's world, but in a world that few of us can yet imagine (BCEd, 2011e, pp. 2).

> ….. So while we enjoy a strong and stable system, we need a more nimble and flexible one that can adapt more quickly to better meet the needs of 21st century learners. We've all got a stake in preparing our young people for success in a changing world. Our challenge is clear. The world has changed and it will continue to change, so the way we educate students needs to continually adapt….We can make education more flexible so that students and parents benefit from the exciting knowledge economy we're part of (BCEd, 2011e, pp. 3).

---

[8] In a conference handout given by the BCPSEA during the 2010 BCSTA Trustee Academy, 20th Century curriculum and teaching methods are characterized to be based on the factory model of schooling inherited from the Industrial Age. In the 20th century model, teaching is teacher-centered and didactic. Learning is passive, with the focus being knowledge acquisition through rote learning using a one-size-fits-all curriculum (BCPSEA, 2010).

Consolidating and distilling from the above, the issue of modernizing the education system entails the following:

Table 5: Objectives of Modernization

Purpose	Description
Personalization	System needs to be more flexible. The provincial curriculum has to provide students with the room to discover and fulfil their passions, on top of learning core skills. System also needs to be more responsive and effective in its interventions for struggling students.
Pertinence	System needs to provide students with greater ownership of their own learning and also increase its relevance to students' experiences in their everyday lives.
Preparation	System needs to prepare students for success in an unpredictable and uncertain world that is changing rapidly and constantly and which is driven by the knowledge-based economy.
Partners	System needs to enhance the involvement of educational stakeholders including parents, teachers and administrators to collaboratively support the learning of students. Parents must be more involved in planning children's education and supporting them in learning.

Guiding Principles in Policy Formulation

For the purposes of this paper, guiding principles in policy formulation are deemed to serve at least two functions. Firstly, they define the parameters that determine the scope of information which will be considered in the process of policy formulation. Secondly, they

structure how information sifted by the parameters would be approached and treated. Thus, guiding principles afford insights into how different bodies of knowledge are prioritized, privileged and processed in the crafting of policies.

There was no explicit mention in the BC documents of the specific principles used to guide policy deliberations. However, it can be inferred from the impetus for reform that the notion of "future preparation" was clearly a guiding axiom used to discern which information to consider in modernizing the education system. In addition, the documentary analysis surfaced four other principles which have informed the formulation of the BC Education Plan. These four principles are identified on the following basis: they have either been directly mentioned in the BC Education Plan or are distilled from the reasoning used in various ministry documents published prior to the launch of the plan but whose influence on it is highly evident.

       i.   Preserving present success factors

      ii.   Scaling-up existing personalized learning practices

     iii.   Calibrating accountability measures

     iv.   Engaging Education Stakeholders

Preserving present success factors

Continued use of provincial learning standards and province-wide assessments:

The use of province-wide performance standards as a way to ensure high standards would be consistently applied within the classroom and across classrooms, schools and districts is implied in the BC Education Plan (BCEd, 2011e). The BC Education Plan made it clear that reading, writing and numeracy will continue to be emphasized through students' meeting of core learning outcomes, which will be monitored by rigorous province-wide assessments.

<u>Continued offering of choice and flexibility</u>:

According to the BC Education Plan, choice and flexibility present options that allow for optimized learning for students. This was corroborated by quantitative evidence of increasing demand for blended learning, which suggested that the flexibility it offered was well received by students (PTC Report, 2010). Thus, even with reform, flexibility and choice will be a mainstay. For instance, public and independent schools, including specialty programmes such as traditional schools and academies, will continue to be available to parents and students (BCEd, 2011e). Going forward, the BC Education Plan stated that it will look to further enhance flexibility in the system to enable personalized learning through offering more leeway for how, when and where learning takes place (BCEd, 2011e).

Scaling up existing personalized learning practices

While one of the avowed aims of modernizing the education system is to enable personalized learning, it is also recognized by the Ministry of Education that many teachers in BC already use personalized approaches to learning, albeit in isolation. For instance, the BC Education Plan acknowledged that teachers were already practising personalized learning and discerned the issue as enabling the proliferation of these practices by granting greater teacher autonomy:

> Many teachers in BC already use personalized approaches to learning but these approaches are often carried out in isolation. Supporting processes, policies, and structures need to be established province-wide (BCEd, 2011e, pp. 5).

> Innovative change is already happening in schools and neighbourhoods across the province. Educators have great ideas for preparing students to take on the future and we want to allow them the freedom to act on those ideas. A more nimble and flexible education system will be able to adapt more quickly to better meet the needs of students (BCEd, 2011e, pp. 2).

A list of generic recommendations targeted at establishing supporting processes, policies, and structures at a province-wide level was included in the 2011 "Personalized Learning in BC – Interactive Discussion Guide" document (see Table 1 in Appendix II on page 138) prior to the launch of the BC Education Plan. Many of these impacted on conceptions of teaching, learning, schooling and the accompanying support systems, which had in turn been translated into the policy options contained in the BC Education Plan. This shows that the principle of "scaling up" guided the crafting of the plan.

Calibrating accountability measures

The expressed need for accountability to ascertain the progress of policy initiatives is a cardinal principle that appears frequently in BC ministry documents, as will be elaborated. According to the PLBCG, accountability also includes reporting how various levels of the education system communicate with the public about how well each level of the system is performing (BCEd, 2011d).

Prior to the launch of the BC Education Plan in October 2011, Deputy Minister James Gorman shared with the BCSSA the need for the right accountability mechanisms to support the shift to personalized learning (Gorman, 2011). It was mentioned that this might entail the rethinking of how teachers, parents, principals and students would be involved in the accountability mechanisms as well as how the mechanism could build public trust in the education system (Gorman, 2011). To realize this, Deputy Minister shared that the ministry would continue to expand data accessibility, develop its on-line presence, review guidelines for achievement contracts and reports on student achievement as well as refine the accountability framework. It would also explore how to better serve school districts in using data to enhance

accountability and achievement (Gorman, 2011). The same commitment to accountability was also made in the 2011/12 – 2013/14 Education Service Plan, where, to "better guide and hold to account the Ministry and all its partners" (BCEd, 2011c, pp. 23), the service plan pointed out that it would be studying goals, objectives, strategies and performance measures tied to personalized learning and 21st Century Learning.

Commitments to the above accountability measures were reiterated in the BC Education Plan. As an example, the plan had stated that it would review teacher regulation and teacher performance management to ensure that both students and the public interest would be protected. It would also develop new tools to provide greater access of richer information on student progress in a more consistent way throughout the province (BCEd, 2011e).

Engaging Education Stakeholders

The BC Education Plan stated that it was developed "through many months of consultation with educators, students, parents and other British Columbians" (BCEd, 2011e, pp. 2). Various efforts had been undertaken to involve stakeholders in conversations to modernize the education system through 21st Century Learning and personalized learning. As Table 2 in Appendix II on page 138 illustrates, these efforts extend as far back as June 2010, more than a year before the launch of the BC Education Plan in October 2011. Thus, the recognition of stakeholder engagement as a guiding principle for informing policy formulation is at least symbolic, if not substantive, from the efforts that had been poured into it.

It is important to note that the Ministry publications on 21st Century Learning and personalized learning are not to be taken as finalized position papers but are actually part of the on-going engagement process. For instance, the "Personalized Learning in BC – An Interactive

35

Discussion Guide" document orientates itself as part of the consultation process with survey

questions that the public – students, parents and teachers – could respond to online:

> This interactive discussion guide is part of an ongoing dialogue to create an education
> system that enables each learner in BC to meet his or her full potential—a world-class
> education system that is both flexible and rigorous, and that reflects current
> understanding of how students learn and can be effectively supported (BCEd, 2011d, pp.
> 1).

The PLBCG also attempted to reflect its recognition of stakeholder voices through an explicit

inclusion of the diverse points of views surrounding 21st Century Learning and personalized

learning. The way this is reflected in the document is replicated below (BCEd, 2011d, pp. 11):

> In British Columbia, the concept of personalized learning continues to be refined. Two
> recent publications provide interesting perspectives:
>
> - "21st Century Learning – Widening the frame of focus and debate: A BCTF
>   Research discussion paper" by Charlie Naylor, Ph.D.
> - "A vision for 21st Century education" by the Premier's Technology Council.

In an open letter to the public on 13 Oct 2011, Minister George Abbott referred to the BC

Education Plan as "a conversation government has been having with students, parents, teachers,

and other education partners to further improve the education system" and promised engagement

with the public to move the plan forward hand in hand (Abbott, 2011). Of significance is the

choice of the word "plan" in the title of the BC Education Plan because it connotes that nothing

is as yet set in stone. Notably, the BC Education Plan is itself positioned as a continuation of the

consultation and engagement process. Various references of the need and intention to further

consult with stakeholders of education to shape the plan are made in the BC Education Plan

itself:

> We need to build on the many strengths of our existing education system while
> modernizing education so it can adapt and respond to students' needs. And we need to
> involve British Columbians more directly in discussions and decisions about education

(BCEd, 2011e, pp. 3).

Working with our education partners, and in consultation with the public, we will get from good to great as we bring personalized learning into classrooms. And we invite all British Columbians to get involved in this exciting transformation. We are engaging students, parents, teachers, educators and community groups to help shape this new blueprint for education. We are bringing all education partners and the public into this dialogue to fully realize BC's Education Plan (BCEd, 2011e, pp. 8).

Rationale for Salience of 21st Century Learning

From the documentary analysis, two factors are identified that led to the salience of 21st Century Learning in BC. These are

    (i)   International and National Educational Trend

    (ii)   Relevance to Local Contexts

International and National Educational Trend

The salience of 21st Century Learning and personalized learning can be attributed to international and national educational trends. Internationally, there is global recognition of the need for educational reforms to ensure that learners are prepared for success in the 21st Century (BCEd, 2011c). Secondly, the salience of 21st Century Learning in BC can be seen as part of an older and wider national movement to promote it in response to the needs of the knowledge economy for economic competitiveness. The global and national trends are elaborated in turn:

Global trend of education reform for the 21st Century

References to similar developments in other international jurisdictions were found to be used as rationalizations in the ministry's documents for doing the same in BC. For instance, the BC Education Plan (BCEd, 2011e) cited that many other jurisdictions also recognize the need to reform their education systems for the 21st Century along the lines of personalized learning:

We're not alone in recognizing the need for change. Jurisdictions around the world are re-examining how their education systems are designed and they are working to make them more responsive to the kind of learning children need now, and what they will need in the future (pp. 8). There is much agreement in most jurisdictions that the way to get from good to great is through personalized learning. Personalized learning is an opportunity for every child, every student, every learner to do their very best in education (pp. 3).

Additionally, the PTC report (2010) also referred to Finland as one of a few examples of other top jurisdictions that are similarly focused on educational reforms targeted at 21st Century skills:

Like other leading jurisdictions, it is recognized by the Finnish Ministry of Education's Strategy 2015 that significant economic value will be generated in creative, high knowledge fields: "Knowledge will be an increasingly important factor of production. Information work, the knowledge economy and content production are growing fields. It is in the knowledge-intensive fields that labour demand will be growing in particular." Furthermore, it notes that "creativity is a source of development – development optimism and innovativeness" and that developing creativity in their students will be a crucial aspect of maintaining cultural and economic competitiveness in the 21st century.

Finland is also considering additional education reforms including the development of "citizen skills" like thinking, self-expression, personal responsibility, participation, entrepreneurial spirit and leadership. Finland is also planning to focus on intensive early interventions (better support and structure) for those falling behind. In addition, they are discussing the possibilities of allowing greater freedom of choice for student activities and curriculum (pp. 13).

National movement in promotion of 21st Century Learning for economic competitiveness

Nationally, the idea of the need of 21st Century Learning for the knowledge economy is not novel and has actually been promoted in Canada and BC for a number of years at highly visible levels. The 2006 Throne Speech (Campagnolo, 2006) recounted the need for the education system to adapt in order to harness the power of new knowledge and creativity:

The transformational force of knowledge and technology is reinventing our world. The new world is a truly global economy, driven by information, ideas, and discoveries. It is a creative economy, where art and culture are the building blocks of innovation, invention, and understanding. Your government wants to unleash the talent, creativity, and skills of all who live here. Education is the key to that endeavour (pp. 17)… All British Columbians will have equal opportunity to benefit from the knowledge economy (pp.

20).

The push for 21st Century Learning also came from the now defunct Canadian Council on Learning (CCL). As early as September 2005, the CCL launched the 21st Century Learning Initiative (Canada) in collaboration with its United Kingdom (UK) counterpart. The Initiative sought to promote dialogue and deliberation on the current education systems and institutions in Canada. John Abbott, Director of the 21st Century Learning Initiative in the UK, provided keynote addresses, led workshops, and participated in planning sessions across Canada for 10 days each Fall and Spring over the 4 years since the launch (Cappon, 2005). These included presentations in New Brunswick, Saskatchewan and British Columbia (BCSSA, 2007). In BC, John Abbott spoke to the BCSSA in 2005. "In May 2007, CCL co-hosted a student conference with 10 school districts that have worked with the 21st Century Learning Initiative (Canada) in British Columbia and the Ministry of Education. Sixty students from the 10 school districts came together with school and district staff to network and explored the "next steps" of educational transformation" (BCSSA, 2007, pp. 1).

On another front, 21st Century Learning gained further traction at the Ministerial level in 2008. On 15 April 2008, the Council of Ministers of Education (CMEC) issued a joint declaration which, among other issues, "recognizes the direct link between a well-educated population and a vibrant knowledge-based economy in the 21st Century" (CMEC, 2008, pp. 1). It was stated that the Ministers recognized "the national interest in ensuring a healthy economy and the importance of education for economic development" (CMEC, 2008, pp. 2). The declaration essentially highlighted the role of 21st Century education in meeting the demands of the knowledge based economy and mandated that education ministers engage all relevant stakeholders in meeting the goals laid out. Further reinforcing the salience of the issue, the

39

Canadian Schools Board Association also made a presentation that advocated for 21st Century

Learning across Canada to the CMEC in February 2011 (Canadian Schools Board Association,

2011).

Similar ideas which expressed the link between the knowledge-based economy and 21st

Century Learning percolated through various ministry documents in BC. For example, the

Revised Education Service Plan published in May 2011 alluded to ideas on personalized learning

as a way to prepare students for the knowledge-based society:

> As the world around us continues to change in the 21st century, the way we educate our children must be flexible and reflect those changes. We are committed to a public education system that will be tailored to the unique needs and interests of every child so that B.C.'s students will be prepared to compete in a world-wide job market.
>
> We need a system in B.C. that aligns with the needs of students, parents, and teachers— one that gives students the skills they need to participate in a knowledge-based society, while also allowing them to explore an educational path that is best suited to their interests, their capabilities, and their chosen future (BCEd, 2011c, pp. 3).

The December 2010 PTC report on a "Vision for 21st Century Education" was perhaps the most

significant in sealing the relationship between the knowledge-based society and 21st Century

Learning. The report directly invoked the knowledge-based society as the impetus for

educational reforms:

> If BC is going to remain competitive, it must have an education system that ensures everyone, regardless of socio-economic background, is able to participate in such an increasingly demanding, knowledge-based society (PTC, 2010, pp. 1).

The PTC report (2010) argued that a knowledge-based society was one which created, shared

and used knowledge for the prosperity and well-being of its people. Such a knowledge-based

society was said to be "well educated, and relies on the knowledge of its citizens to drive the

innovation, entrepreneurship and dynamism of its economy. (pp. 1)" More specifically, the

economy would be "directly based on the production, distribution and use of knowledge and

information." Students must therefore learn to be creative and learn how to innovate with the information that was so readily available.

Additionally, the PTC report (2010) contended that technology had levelled the global playing field such that the work that took place in a knowledge-based society was highly mobile. It could be done anywhere, by anyone with the appropriate training. In other words the knowledge economy would move with the people who carried that knowledge. The country thus needed an education system that produced expert knowledge workers. Education, therefore, is the key to economic survival in the 21st century.

As a corollary, the PTC report (2010) stated that the ease of access to content through technology, the pace of change of knowledge and the need for multiple career options in the knowledge-based society demanded an education that encouraged lifelong learning[9], which the current system could not achieve. It also stated that traditional skills such as literacy, numeracy, and critical thinking needed to be applied in different ways and supplemented with new skills and attributes in order for students to become full participants in a knowledge-based society. The PTC report (2010) acknowledged that education experts and professional administrators agreed that reforms towards the 21st Century education system was challenging but the report nevertheless urged that the BC government "should place high priority on accelerating the pace of change to become truly transformational" (pp. 4).

Finally and most certainly, the salience of 21st Century Learning was reinforced by other provinces that have already acted on it. In a teleconference with reporters on 31 August 2010, Minister of Education Margaret MacDiarmid pointed out that Alberta and New Brunswick have

---

[9] Lifelong learning is defined as a complex and multi-faceted process, that begins in pre-school, is carried on through compulsory and post-compulsory periods of formal education and training, and is then continued throughout life, through provision of such learning experiences, activities and enjoyment in the home, in the work-place, in universities and colleges, and in other educational, social and cultural agencies, institutions and settings (both formal and informal) within the community (Aspin & Chapman, 2000, pp. 16).

had extensive planning around personalized learning and that BC was similarly exploring the notion (Steffenhagen, 2010a).

Taken together, the above examples lend support to the claim that the salience of 21st Century Learning among BC policy makers stem significantly from the attention given by other jurisdictions, both internationally and nationally, to the same issue.

Relevance to Local Contexts

In addition to international and national educational trends, the notion of "21st Century Learning" also gained salience in BC due to its relevance to local contexts. This section situates the salience 21st Century Learning policies within existing contextual backdrops in order to gain an appreciation of its logic as an area of potential educational change in BC. The following contexts are considered:

(i)   Educational

(ii)   Demographic

(iii)   Cultural

(iv)   Socio-economic

(v)   Political

Educational Context

In BC, there is recognition of a strong education system with motivated and talented students, outstanding teachers, committed parents, skilled administrators, dedicated education partners as well as sound facilities (BCEd, 2011e). The system also delivers strong educational outcomes, as reflected through students' performance in international benchmarking assessments

such as the PISA and through post-secondary transition rates that ranked among the best in the country (BCEd, 2011d).

However, there is a need to further improve the existing system due to the presence of lingering challenges such as a stagnant post-secondary education transition rate (BCEd, 2011d) the constraints of numerous prescribed learning outcomes on teacher autonomy, dissatisfaction of education stakeholders and deteriorating educational outcomes (BCEd, 2010b). At the same time, the system needs to cope with several emerging trends within the BC educational context that impact on educational services. These include a declining cohort enrolment, growing demands of special-needs education and English-as-a-second-language services, among others. These "challenges" and "emerging trends" are summarized by Table 3 and 4 in Appendix II on page 141.

It is against the above educational backdrop that the promulgation of 21st Century Learning through personalized learning is occurring. While how personalized learning may address the issues encompassed by the challenges and trends described above is not explicitly articulated by the ministry, the need to at least integrate the latest knowledge from research on learning into education reform is acknowledged by the BC Education Plan (BCEd, 2011e). Thus enters personalized learning.

In the Ministry's presentation to the BCSSA during the 2010 Summer Leadership Academy, the rationale for personalized learning was attributed to the knowledge arising from how students learn:

- Learning is an active, social process
- Motivation is a key component for effective learning
- Learners bring different knowledge to a learning challenge
- Learners start from different places and travel along different routes to the same learning outcomes.

43

- Knowledge should be discovered as an authentic and integrated whole
- The change is not only about new tools but about new behaviours.

The main thrust of the instructional approaches employed to realise personalized learning is summarised in the "Personalized Learning in BC – Interactive Discussion Guide" document as follows:

> These instructional approaches are not new. Constructivism, problem-based and project-based learning, and other methods of teaching all support the belief that children are natural learners and that they have an innate capacity to learn and provide hands-on relevant learning experiences for students (BCEd, 2011d, pp. 20).

Perhaps unsurprisingly, much of the influence in educational research leading to the ministry's attention on personalized learning appears to have come from John Abbott and the 21st Century Learning Initiative (Canada). The CCL, through the 21st Century Initiative (Canada), had worked to widen and deepen the exposure of Canadian educational leaders to the synthesis of the research by John Abbott:

> As we have considered the 21st Century Learning Initiative in Canada, then, there are three purposes which drive us to establish an initiative in this country. The first is to make widely available the nature of the enquiry about learning which John Abbott disseminates…..Secondly, we wish to take advantage of each of John Abbott's visits to Canada - to coordinate those visits - to facilitate in-depth exposure of educational leaders to the synthesis which the 21st Century Learning Initiative provides. This will be supported by a range of supplementary documentation and educational videos from the 21st Century Learning Initiative which will be made available in Canada through the joint initiative (Cappon, 2005, pp. 1).

Corroboration that John Abbott's ideas are influential in the Ministry can be found in the documents analysed. For instance, in the 7 May 2010 "Report on Education from the Deputy Minister of Education", it was stated that John Abbott visited the Ministry on 24th and 25th March with regard to 21st Century Learning (Gorman, 2010). On 20 Feb 2012, Janet Steffenhagen of the Vancouver Sun reported that Minister of Education George Abbott and John

Abbott addressed the BCSSA together. The article stated that the latter is highly regarded in BC education circles. Steffenhagen added that the Minister described John Abbott as a "friend and mentor". It was also reported that Vancouver superintendent and BCSSA President, Steve Cardwell, introduced the two Abbotts by saying they have had greater influence on B.C. education than anyone else in a decade (Steffenhagen, 2012).

Perhaps the strongest evidence of the influence from the educational research by the 21st Century Learning Initiative comes from its April 2010 paper "Schools in the Future: What has to change, and why". The paper drew upon the ideas contained within the book "Overschooled but Undereducated" by John Abbott and additional research from around the world. It was meant "to be helpful to those in British Columbia, who are seeking to bring about radical change" (21st Century Learning Initiative, 2010, pp. 8). The ideas on learning contained in the paper are strongly echoed in the "Personalized Learning in BC – Interactive Discussion Guide" document (BCEd, 2011d). In essence, the "Schools in the Future" paper advocates for personalized learning through constructivist and enquiry-based approaches and grounded its recommendations on findings in human learning research. A summary of the recommendations from the paper are included in Table 5 in Appendix II on page 142. The paper's abstract, which explains the intended educational outcomes of personalized learning, is reproduced below:

> An explanation of why, in the light of recent research on the nature of human learning, the present Western, essentially Anglo, system of schooling is both upside down in terms of its distribution of resources, and inside out in terms of its excessive dependence on school-as-place; on formal as opposed to informal learning, and on the teacher as instructor rather than as facilitator. Once the entire system is redesigned on the basis of constructivist and enquiry-based practice, then student dependence on teacher and school will begin to decrease with age. This will allow a growth in student choice and responsibility so escaping from the present dilemma of squeezing out-dated systems to perform in ways which truly release human potential at hitherto unprecedented levels (21st Century Learning Initiative, 2010, pp. 1).

A second source of strong influence in educational research comes from Valerie Hannon and Tony Mackay from the non-profit, Innovation Unit[10] (IU) based in the UK. The IU is a partner of the Global Education Leaders Programme[11] (GELP), which objective is to advocate a vision of and promote the global movement of 21st Century Learning. Hannon and Mackay played pivotal roles in shaping the Ministry's thinking, especially in the area of system reform. They have had many opportunities to work with ministry officials and superintendents in the area of facilitating change towards 21st Century Learning. In the 7 May 2010 "Report on Education from the Deputy Minister of Education", it was stated that Hannon and Mackay facilitated the exploration of 21st Century Learning with ministry staff on 5 and 6 May 2010:

> Valerie and Tony met with various groups of ministry staff and the staff as a whole to help us continue our exploration of 21st Century learning. They challenged our thinking and assumptions on a number of 21st Century related issues especially personalizing learning and its implications around assessment and curriculum. We plan to engage Valerie and Tony in future conversations as we continue down this exciting path as well as other BC educators who are incorporating exciting aspects of 21st Century learning into their educational programs (Gorman, 2010, pp. 2).

The duo also presented and argued for 21st Century Learning to the BCSSA during its Fall conference on 18 and 19 Nov 2010 (Hannon & Mackay, 2010a, 2010b, 2010c). As a follow up intended to take stock of personalized learning developments in the various districts, they again met the superintendents on 7 September 2011, during a provincial conversation organized by the BC Ministry of Education for superintendents and lead ministry staff (BCEd, 2011g).

In their presentation, Hannon and Mackay (2010a) emphasized the need for a 21st Century curriculum which incorporated, among other components, 21st century skills and the latest research on learning, in order to prepare students for a world driven by globalization,

---

[10] The Innovation Unit is a not-for-profit social enterprise with an experienced team of partners and senior associates. The Unit enables leaders in public education to create innovation that is disciplined, radical, scalable and sustainable.

[11] Background of the GELP including its history, objectives and partners can be found in Table 6 of Appendix II on page 142.

technological advancements and demographic shifts. In particular, they had drawn mainly from the work of the US-based Partnership for 21st Century Skills and the OECD for their presentation on 21st century skills. Their presentation pointed to the P21 as having the most complete and well-known framework for 21st century skills in which it not only identified the skills but also the educational systems and supporting structures necessary to implement them. The presentations also featured "new skills for a new world" by Andreas Schleicher from the OECD Directorate of Education as well as research derived principles on the conditions for effective learning environments based on the OECD paper "*The Nature of Learning: using research to inspire practice*" (Hannon & Mackay, 2010b, 2010c). Summaries of the IU's 21st century curriculum, Schleicher's "new skills" and the principles for effective learning environments from the OECD paper can be found in Table 7-9 in Appendix II on page 144. Many of the concepts and ideas similar to those featured in these presentations are evident in the PTC report (2010) and the BC Education Plan (BCEd, 2011e).

Of interest from Hannon and Mackay's presentation is also the "Education 3.0 framework" developed by the GELP for facilitating educational change (Hannon & Mackay, 2010b). The framework has been translated into a set of diagnostic checklists to guide ministry staff and superintendents in their work towards 21st Century Learning at the school level and at the systems level (Hannon & Mackay, 2010d, 2010e). As can be seen in Figure 1, the framework spans 4 critical areas of the education system landscape: curriculum, pedagogy and assessment; infrastructure and technology; policies, procedures and management; as well as leadership, people and culture.

<u>Figure 1: Framework for Education</u>

The Education 3.0 Framework
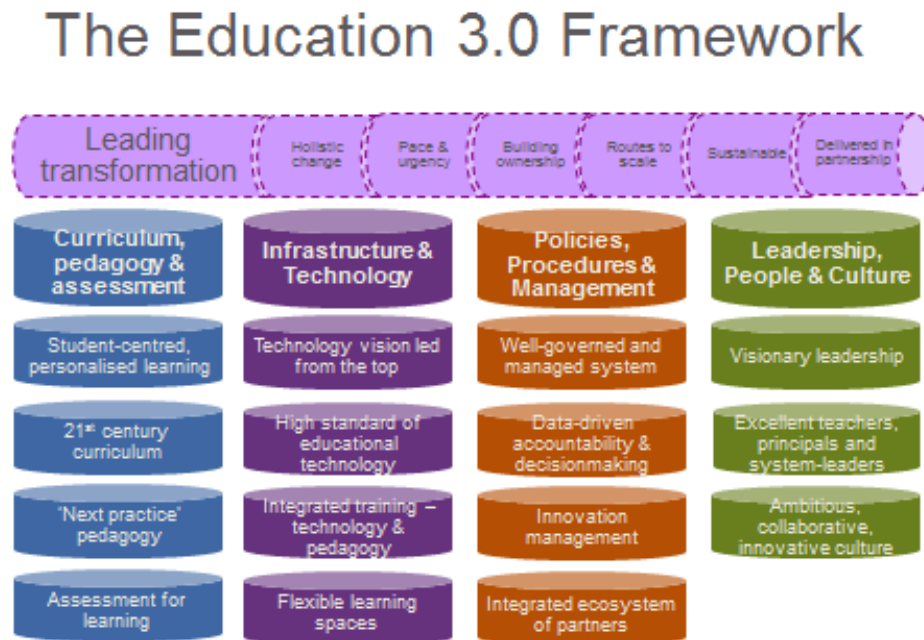
<u>Demographic Context</u>

As explained by the "Personalized Learning in BC: Interactive Discussion Guide", the educational implications of BC demographics is characterized by geographical and cultural complexities:

> British Columbia is a vast, unevenly populated province. Most of our over four million people live in urban centres, but we also have hundreds of vibrant and unique rural communities. Urban and rural communities offer different types of opportunities and face distinct challenges in providing high quality early learning experiences to children. Our province is culturally diverse, reflecting the history of its Aboriginal peoples as well as generations of immigrants, and this diversity is increasing (BCEd, 2011d, pp. 6).

Notably, demographic shifts also impact on education. "With an aging population and shrinking workforce, British Columbia will face skills shortages in its labour market, particularly in high-skill occupations and high-growth industries, putting added pressure on B.C. graduates. The aging population means less tax revenue to invest in services such as health and education" (BCEd, 2011c, pp. 8). The move towards 21st Century Learning in BC is thus occurring in the

face of a stronger emphasis on the "high-skill occupations", which reinforces the need for education to equip students with the competencies to navigate the knowledge-based economy.

<u>Cultural Context</u>

While culturally diverse in terms of its population, BC shares a culture that values education, where students, parent and teachers all need the teaching profession to be administered in a way that ensures high standards and which puts the public interest first (BCEd, 2011e). This sentiment is echoed by the 21st Century Learning Initiative (Canada), which suggested that the research concerning 21st Century Learning should be made widely available because it was "information of interest to broad Canadian publics, which have a thirst for such perspectives in the context of their own personal lives and that of their society" (Cappon, 2005, pp. 9).

Simultaneously, students are growing up in a world that is dramatically more complex than it was just a few years ago. In a remarkably short period of time, the world and its people, economies, and cultures have become inextricably connected, driven largely by the Internet, innovations in mobile computers and devices, and low-cost telecommunications technology where communication is now instantaneous and information is available from anywhere at any time (PTC, 2010, BCEd, 2011c). There are also increasing expectations for more open government, education, and society (PTC, 2010).

The PTC Report (2010) also acknowledges that "most students are digital natives who have known only the digital age, are fully conversant with technology and capable of using it as part of learning" (pp. 4). As substantiation, the report cited a study by Cisco which discovered that except for when they are sleeping, school is nearly the only time when high school students

do not use technology. It would thus be strategic for the education system to acknowledge this and harness technology to better meet the unique needs of individual students through a personalized approach to learning. Moreover, technological skills also enable students to more fully participate in the knowledge-based economy as knowledge workers (PTC, 2010).

All the above are developments aligned with the need to modernize the education system to ensure that it reflected the culture of the times. This claim is reinforced by the 2006 Throne Speech, which in retrospect, anticipated several of the recommendations found in the 2011 BC Education Plan:

> We must aspire to make public education more relevant to students' needs and more accountable at every level. We must aspire to excellence in teaching and learning, through greater choice and flexibility, and new opportunities for parental involvement. This is your government's vision for education and literacy. It is an agenda of transformative change that looks at the new world through new eyes, with new intent to act (Campagnolo, 2006, pp. 19).

Socio-Economic Context

The BC Ministry of Education Service Plan of May 2011 stated that the increased competition in the global economy made improving the productivity of BC's workforce a necessary and urgent priority. According to the Service Plan, "today's employers look for workers with well-developed skills in areas such as critical thinking, communication, innovation, problem solving and teamwork. Many of today's career opportunities did not even exist a decade ago. Students would need to have the skills to adapt to a rapidly changing world" (BCEd, 2011c, pp. 8). Against this backdrop, looking at how the education system may change to better respond to and prepare students is thus a seemingly valid move.

<u>Political Context</u>

The government continues to build relationships with Asia-Pacific nations through transportation links, cultural exchanges, and educational partnerships (BCEd, 2011c). Of particular relevance to education is the government's agenda to make British Columbia a destination of choice for international students that capitalizes on the strengths in BC's schools, colleges, universities and institutions (Point, 2010). In the 2011 Throne Speech, it was announced that "the government is developing an international education strategy to increase enrolment of foreign students by 50 per cent over 4 years, adding $500 million to our provincial economy" (Point, 2011, pp.13). In this light, the need to modernize the education system to ensure its relevance (and appeal to foreign students) takes on an added imperative.

BC's 21CL Policy – Personalized Learning

Having considered the impetus for reform, the guiding principles of policy formulation and the reasons for the salience of 21st Century Learning in BC, the focus is now turned to the conceptions of 21st Century Learning as articulated through BC's 21CL policy.

As the quote below expresses, the main policy option proposed to modernize the education system in BC is 21st Century Learning codified as personalized learning:

> The vision of a 21st century K-12 education system is rooted in personalized learning. It focuses on providing students the skills they need to participate in a knowledge-based society, while also allowing them to explore an educational path that is best suited to their interests, their capabilities and their chosen future (PTC, 2010, pp. 2).

This section will focus on unpacking "personalized learning" as advanced by the BC Education Ministry. From the documentary analysis, it is found that the discussion could suitably be framed using the conceptions of "learner and learning", "teacher and teaching", "family" as well as "school and community". The analysis draws its data mainly from the "BC Education Plan"

51

(BCEd, 2011e), the "Personalized Learning in BC – Interactive Discussion Guide" (BCEd, 2011d) and the "PTC Report" (2010) from the Ministry of Education. These documents contain mutually reinforcing and overlapping ideas. Relevant data from other supporting documents from the ministry will also be used.

<u>Conception of Learning and the Learner</u>

The primary conception of learning forwarded by the BC Education Plan is the notion of personalized learning. Table 2 below provides a summary of the guiding principles of personalized learning, what it entails, and how it is envisioned to operationalize.

Table 6: Summary of Personalized Learning

Personalized Learning	Description
"Principles" of personalized learning	• <u>Student Centricity</u> – Learning will focus on students' needs (in terms of learning styles and abilities), strengths and aspirations of each individual student (BCEd, 2011e). • <u>Student Ownership</u> – Students will play an active role in designing their own education and will be increasingly accountable for their own learning success (BCEd, 2011e).
"What" of personalized learning	• <u>Skills</u> – reading, writing, oral language and numeracy (BCEd, 2011d). • <u>Knowledge</u> – from various content subjects and disciplines (details unspecified) (BCEd, 2011d). • <u>Competencies</u>[12] – social responsibility, global and cultural understanding, environmental stewardship, healthy living, ethics, collaboration, creativity, innovation, critical thinking, problem solving, digital literacy (BCEd, 2011d).
"How" of personalized learning	• <u>Learning Modes</u> – New, often interdisciplinary situations through project-based and problem-based approaches (BCEd, 2011d).

---

[12] Different formats of presenting this exists in different ministry documents. The version used in the table is the chosen on the basis that it is in the most recent format.

	• Learning Emphasis – Increased emphasis on competencies and on reflection vis-à-vis content (BCEd, 2011d, PTC, 2010). • Learning Approach – Learners increasingly work with instructors to design and pursue their own learning tracks according to their capabilities and interests as they progress in the education system (PTC, 2010). • Learning with Technology – Greater use of technology to design and support personalized learning as well as for collaborative learning (PTC, 2010).

As the learner progresses through the education system, it is envisioned that the extent of independent and self-directed learning will increase with a simultaneous reduction of learning taking place via a mandatory core curriculum:

> From One Size Fits All to Tailored Learning: As students progress, they will increasingly access and engage with their own content, at their own pace of learning and take an increasing role in charting a path best suited to those talents, interests and abilities. On a day to day basis this will require a more project-based or problem-based approach and will help to keep the students engaged and interested in learning (PTC, 2010, pp. 2).

Students will thus take on greater ownership for their own learning in a "more open, exploratory learning environment where they *learn by doing, not reading and listening* [italics added]" (PTC, 2010, pp. 4). With ubiquitous access to information via technology, measurement of success will be partly related to how students find, use and develop accurate, relevant content (PTC, 2010). They would meet on a regular basis with their teachers to ensure they are on the right track in meeting their own learning goals (BCEd, 2011d). In tandem with the modernization of the education system to increase pertinence of students' learning to their lives, the PTC Report (2010) also conceptualizes the learning experience as moving from that of "classroom learning to lifelong learning". This means that aspects of a student's life outside of school will be incorporated into their education so as to better integrate learning and living (PTC, 2010).

Conception of Teaching and the Teacher

"In order to help students succeed in the rapidly-changing world, teachers will be empowered to shift from being the primary source of content to focus on helping students learn how to learn" (BCEd, 2011e, pp. 4). The PTC Report (2010) acknowledges that teachers have already recognized that their role is shifting. The conception of the teacher and teaching is summarized in the table below.

Table 7: Summary of Conception of Teacher and Teaching

Teacher	Description
Role	"From Teacher as Lecturer to Teacher as Guide: The role of the teacher switches to that of a learning coach or coordinator and it is no longer a requirement for them to know more information than the student on every topic" (PTC, 2010, pp. 4). - Teachers become co-learners with their students, using inter-disciplinary approaches and working in teams of teachers to support them (BCEd, 2011d).
Instructional Focus	As the learner progresses through the education system, "instruction should more consistently focus on the skills required to find and use relevant content rather than on the delivery of pre-determined content. (PTC, 2010, pp. 8)"
Instructional Strategies	- Teachers have to be competent and flexible with a range of instructional strategies, switching between direct teaching and constructivist-based facilitation as the situation requires in meeting the needs of students (BCEd, 2011d). - Facilitation strategies involve the provision of rich learning opportunities and environments, and may entail connecting students with people and experiences that nurture their competencies (BCEd, 2011d). - Technology also serves as useful tools for teachers to guide their students' learning (PTC, 2010). - Recognizing and providing a variety of ways for students to express their learning (BCEd, 2011d).

Assessment Strategies	• For assessments, teachers will observe, monitor and evaluate students' progress and ensure they are on track to meeting students' learning goals (BCEd, 2011d).
	• In the early years, teachers will involve students and their family in planning students' learning (BCEd, 2011d).
	• From the middle years, teachers will involve students in the assessment of their learning (BCEd, 2011d).

Conception of the Role of the Family in Learning

The BC Education Plan (BCEd, 2011e) envisions the family as playing an active role in students' learning. This is further elaborated in the Personalized Learning in BC: Interactive Discussion Guide (BCEd, 2011d), where the family:

- Helps the child to develop a personal learning path and work towards defined goals
- Receives frequent feedback on child's progress
- Has many opportunities to discuss child's progress with teachers

The PTC Report (2010) summarizes the role of the family as changing *from a supporter of to a participant* in the child's learning:

> With greater information availability, parents can be more involved with their children's education by guiding decisions, helping to overcome challenges, and supporting learning outcomes. Furthermore, parents have to recognize their educational role outside the classroom. A student's out of school learning is critical (pp. 4).

Conceptions of the School and the Community

The idea of the school is expanded to include the Neighbourhood Learning Centre (NLC)[13] or other community resources (BCEd, 2011d). Much learning still occurs in the school

---

[13] The BC government website states that all schools in BC can be NLCs, "inviting places where people of all ages can access education, community services, recreation and culture seven days a week, twelve months a year – places that promote the well-being of children, families and the entire community". NLCs look different in every community with a range of models including community schools, community hubs, schools with municipal

with teachers in the early and middle years. However, the community is increasingly envisioned as a natural and safe extension that expands students' inquiry-based learning beyond school as the student progresses through the education system. It offers *places* where students may obtain information or use technology (e.g. public libraries) and *people* who may lend expertise or support to students' projects. In the graduation years thus, the school becomes more a touch point for guidance (e.g. opportunities to learn about dual credits), community-based learning and work-related learning. The PTC Report (2010) captures this as such:

> The education system must evolve from being the focal point of education to more of a base camp for learning. Students only spend a fraction of their time in schools and there is also a need to continue learning throughout life beyond the period of formal education. This requires a more balanced approach that includes learning partners and increased engagement of parents and the community (pp. 3).

Implementation Strategies

Besides personalized learning, other accompanying policy options proposed under the BC Education Plan (BCEd, 2011e) may be broadly conceived as implementation strategies to support its realisation. These options are "quality teaching and learning", "flexibility and choice", "high standards" and "learning empowered by technology" This section will unpack each of these policy options.

Quality Teaching and Learning

The BC Education Plan (BCEd, 2011e) recognizes that quality teaching and learning is instrumental to the successful implementation of personalized learning. It stated that teachers will receive support as they transition to designing personalized learning for students. Promises

recreation services and schools with community services such as health care, theatres, libraries, early learning facilities, seniors' centres and cultural centres (BCEd, 2011f).

were made to maintain high professional standards and increase public confidence of the teaching fraternity by introducing new systems to boost transparency and regulate the accountability of the teaching profession. Other key initiatives proposed include ensuring high quality of pre-service teacher hiring and training, professional development of in-service teachers and curriculum design. Details of the key initiatives under *quality teaching and learning* can be found in Table 10 of Appendix II on page 146.

Flexibility and Choice

In the BC Education Plan (BCEd, 2011e), it was stated that "flexibility and choice" supports personalized learning because it translates in effect to "more choice for students and families with respect to how, when and where learning takes place" (pp. 6) and thus enable greater responsiveness to students' needs. The general approach is to cater to differentiated student needs better by empowering boards with greater local autonomy in managing resources to organize student learning (Gorman, 2011). In terms of operationalization, it is envisioned that districts will be given greater flexibility to configure the school calendar year, school day and instructional time by amending legislative bills and through collective bargaining (details unspecified). How students' learning outside the classroom can be credited will also be studied to better recognize a wider variety of learning undertaken by students. The policy intent, effects and actions of "flexibility and choice" is summarized in Table 11 of Appendix II on page 148.

As part of the follow up to this policy option, it was announced on 26 April 2012 that Bill 36, the School Amendment Act of 2012, had been passed in parliament to remove barriers to personalized learning by allowing students and families greater flexibility and choice in the following ways (BCEd, 2012c):

- Extending blended courses of online learning and traditional learning to all students in the K-12 system, instead of only students in grades 10 to 12.

- Eliminating the Standard School Calendar to enable boards of education and education authorities to offer more creative scheduling options that better meet the needs of their students within the confines of stipulated minimum instructional hours by the ministry.

- Granting school boards greater capacity to charge fees so that they may provide programmes that reflect the unique needs of their communities. For instance, boards may charge fees relating to the direct costs of providing an international baccalaureate program if they exceed the costs of providing a standard education program. Any such fees would be subjected to financial hardship provisions.

High Standards

The BC Education Plan (BCEd, 2011e) stated that high standards would be maintained even as the system embarks on personalized learning. This will be accomplished through reviews and improvements that will ensure student performance with respect to provincial standards as well as quality classroom-based assessments. The Ministry will also explore assessments that reflect the individualized development of students in alignment with the move to personalized learning. Lastly, improvements to enable more timely intervention strategies for students and reporting to parents will be developed. The policy instruments for implementing "high standards" are summarized in the Table 12 in Appendix II on page 149 (Gorman, 2011).

Learning Empowered by Technology

The BC Education Plan (BCEd, 2011e) identified the smart use of technology as a way to enable personalized learning in schools. The articulated approach is essentially to strengthen the competence of teachers' use of technology to plan and execute personalized learning as well as to use it for collaborative engagement with other teachers and stakeholders. For students, beyond the use of technology in learning, they will also be taught the ability to use technology more

critically. The intentions of this policy option are summarized in Table 13 in Appendix II on page 149. On-going background work to enable the realization of this policy option is being undertaken by the Ministry and is summarized in Table 14 in Appendix II (Gorman, 2011) on page 150.

Stakeholder Positions

This section focuses on an account of the general orientation of various BC education stakeholders with respect to the education ministry's plans for 21st Century Learning and personalized learning. The analysis of stakeholder positioning is a relevant and critical aspect of the policy formulation process because the success of policies depends significantly on the persuasion and participation of stakeholders. This analysis also serves as a gauge of the outcomes of the series of stakeholder engagement activities that the ministry has undertaken thus far with regard to 21st Century Learning. As the aim of the section is to ascertain the general positioning of stakeholders and not to provide a treatise of their detailed responses to the proposed policy options, the supporting analysis completed for the latter will be included in Appendix III. The stakeholders that will be examined include the BC Teachers' Federation (BCTF), BC School Trustees Association (BCSTA), BC School Superintendents' Association (BCSSA), BC Principals' and Vice Principals' Association (BCPVPA), BC Public School Employers' Association (BCPSEA), BC Confederation of Parent Advisory Councils (BCCPAC) and students.

BC Teachers' Federation (BCTF)

The BCTF is by far the most vocal stakeholder that has responded to the Education

Ministry's plans for 21st Century through personalized learning. It has written many articles regarding the issue (which this study traces back to September 2010), and has also created a dedicated website to offer its perspective on 21st Century Learning to the public. In early 2011 the BCTF published a seminal discussion paper authored by Charlie Naylor (2011a), a senior researcher in the union, titled – "21st Century Learning: Widening the frame of focus and debate: A BCTF Discussion and Debate Paper" – in response to the PTC Report of December 2010. The BCTF problematizes the Ministry's move to 21CL and personalized learning in almost all aspects, from the impetus for reform to the salience of 21CL to critiques of the various proposed policy options in the BC Education Plan. It challenges the validity of claims on the knowledge-based economy and its needs; impugns the silencing of alternative discourses for 21st Century Learning that are not based on economic arguments; highlights the conflict between teacher autonomy and the intended use of provincial standards in 21CL; as well as questions the feasibility of personalized learning in the face of continual diminishing financial, human and material support from the ministry. The details of BCTF's positions can be found in Appendix III on page 152.

The need for the ministry to consult with teachers in co-constructing any plans for educational reform had been reiterated several times by members of the BCTF. In December 2010, Sims (2010) wrote that educational professionals must insert their voices into the debate about education reform and welcome a dialogue that is based on sound research, pedagogy and practice. Sims maintained that educators cannot allow reformers to put their own spin on education change and should do so by embracing elements that are sound and critiquing those that will undermine and privatize public education. She stated that any education reform in BC must see the ministry engage teachers in a meaningful dialogue based on the professional

experience and knowledge of teachers (Sims, 2010). This view was reinforced again in March

2011 by Turner (2011), who argued that teachers were best positioned to know how policy gets

translated into practice and must be integral to any conversations on educational reform.

In December 2011, Kuehn (2011) reflected that while the minister had implied the BCTF

had been consulted for the BC Education Plan, teachers were not formally consulted on the plan

before it was announced. In the same month, the Burnaby Teachers' Association decided that it

will bring to the BCTF Annual General Meeting in 2012 a resolution for the BCTF to form a six

member committee on the 21st Century Initiative (Burnaby Teacher's Association, 2011). The

mandate of this committee was to:

i.   Build on the research done by the BCTF in order to explore a framework for the implementation of a *21st Century Learning Initiative* that is supportive of public education.

ii.   Investigate methods by which the BCTF can educate members about its *21st Century Learning Initiative* that includes, but is not limited to, providing professional literature and in-service training.

iii.   Commence a public action campaign that informs both parents and the public at large about the benefits of the BCTF *21st Century Learning Initiative* and provides an opportunity for them to support the campaign.

In the resolution's supporting statement, it was stated that the government was developing the

21st Century Learning agenda without consultation with teachers. It was thus imperative that BC

teachers present their own framework for 21st Century Learning that was consistent with the

principles of a quality public education system (details unspecified). Along with a research-based

framework for 21st Century Learning, a network of support for BCTF members will be created

that would allow them to successfully implement 21st Century Learning in their classrooms. Due

to other pressing issues, this resolution was not discussed at the 2012 BCTF AGM (Parkes,

2012). Regardless, from the development of events as documented above, it can be concluded

that the BC Education Plan suffers from a lack of support by the BCTF, which is by far the most important segment of educational stakeholders, given that it represents the teaching fraternity.

BC School Trustees Association (BCSTA)

Since the Learning Roundtable (Minister dialogue with all presidents of educational stakeholder organizations) in June 2010 right up to the April 2012 BCSTA AGM, the BCSTA has consistently expressed its desire to engage actively with the Ministry "to discuss how boards and the Ministry of Education may work together to shape a vision for learning in the 21st Century and to consider how that vision may be translated into valued and sustainable programmes for students" (BCEd, 2010a, BCSTA, 2010b).

In terms of its overarching position, the BCSTA can be said to be conditionally supportive of the BC Education Plan with the caveat that sufficient resource provision be made available for the realization of personalized learning for all students. The need to look at stable and predictable funding in order to enable the vision of educational reform was repeated several times by BCSTA during the 2010 Legislative sessions and in other documents (Legislative Assembly of BC, 2010b, 2010c, BCSTA, 2011b). The BCSTA has also specifically stated its support for the policy option of 'flexibility and choice', citing the rigidity of school calendars as one of the structural impediments to educational reform towards personalized learning during the 22 Sep 2010 legislative session (Legislative Assembly of BC, 2010b). Perhaps the strongest signal of BCSTA's stance of conditional support comes from its 23 October 2010 resolution passed at the BCSTA Provincial Council meeting which publicly issued advice to the Minister of Education (Steffenhgaen, 2010b):

That the BCSTA advise the Minister of Education that change in public education for the 21st Century will be enthusiastically embraced if that change:

a. has at its foundation the importance of positive relationships, particularly for students, and also among individuals and groups at all levels;

b. is based on a vision developed through a collaborative process

c. recognizes and builds on the existing strengths and successes of BC's public schools;

d. is purposeful in enhancing the public system and deepening the democratic governance of public education;

e. is adequately resourced.

A more detailed summary of BCSTA related findings with regard to 21CL in BC can be found in Appendix III on page 165.

BC School Superintendents' Association (BCSSA), BC Principals' and Vice Principals' Association (BCPVPA), BC Public School Employers' Association (BCPSEA)

To date, there is no evidence of publicised reports from the BCSSA, BCPVPA and BCPSEA that hint at dissension or which presented a view of 21CL that deviates from that of the ministry. The BCSSA, BCPVPA and the BCPSEA are generally found to be supportive of 21CL and the BC Education Plan advanced by the ministry, as will be elaborated in turn.

Compared to other stakeholders, the BCSSA has been engaged most frequently by the Ministry and fully understands the intent and direction of 21CL in BC from the Ministry's standpoint. The BCSSA advocates inclusive and collaborative discussions involving all partner groups in exploring the way forward for 21CL (Steffenhagen, 2011). In fact, as leaders in education, superintendents were tasked by the Ministry to be the principal catalysts that will facilitate the shift to personalized learning on the ground (Gorman, 2011). A more detailed summary of BCSSA related findings is included in Appendix III on page 172.

On the other hand, the BCPVPA expresses its implicit support for 21CL through the articles it publishes in its newsletter, the "admininfo". The articles are presented from the premise of alignment and agreement with 21st Century Learning notions rather than from a position of challenge (BCPVPA, 2009, BCPVPA, 2011c). BCPVPA support can also be inferred from the 21CL related presentations included in its annual conference "Connecting Leaders: Learning for Changing Times (CLLCT)" (BCPVPA, 2011b, BCPVPA, 2012). The BCPVPA made a significant contribution to 21CL in BC by giving a voice to students in the discussion of 21CL (discussed in the section on "students" as stakeholders). The students' inputs were highly congruent to 21CL notions and appeared to have solidified BCPVPA's fundamental support of 21CL in BC. The one and only point of potential contradiction by the BCPVPA to the BC Education plan is its public dismissal of the FSA as a reliable tool for system-level evaluation (BCPVPA, 2011a). It is a potential contradiction because the BC Education Plan specifies the need for province-wide assessments as a safe guard for high standards. A more detailed summary of BCPVPA related findings with regard to 21CL can be found in Appendix III on page 175.

The position of the BCPSEA with regard to 21st Century Learning and personalized learning is aligned with that of the Ministry, as can be inferred from BCPSEA presentations and publications. At the December 2010 BCSTA Trustee Academy pre-conference session presentations, BCPSEA argued for change demanded by "21st Century Learning and Personalized Learning" as a basis for discussing the human resources and labour relations of the education system with the trustees (details unspecified) (BCSTA, 2011c). In May 2011, the BCPSEA published a paper entitled "Perspectives in Practice: Employment in Transformational Times or Change as Usual" which purported that there were two views in BC with regards to the need for educational change for the 21st Century. It positioned the first view advanced by the

PTC as affirmative towards change and the other view "most often represented in articles and reports published by the BCTF" (BCPSEA, 2011a, pp. 3) as highly questioning of the motives behind the call for transformational change. This publication elicited a rebuttal from BCTF's Naylor (2011b):

> (The BCPSEA) creates a false dichotomy which fosters divisive educational debate in BC. It simplistically and erroneously suggests there are two dominant perspectives around 21st century learning in the province. The first, according to and implicitly supported by BCPSEA, is reflected in the work of the Premier's Technology Council, which argues for transformation of education to meet the needs of a changing world. The second, implicitly critiqued by BCPSEA, is reflected in several BCTF reports and documents. Thus, transformation and positive change appears to be promoted by the former Premier and his Technology Council while the BCTF appears Luddite and suspicious (pp. 1).

In its publication "Teacher Compensation 2011: Context & Consideration" on 16 May 2011, the BCTF's objection to 21st Century Learning was specifically listed as part of the backdrop surrounding the collective bargaining of teacher compensation, though how the former impacts on bargaining was not articulated (BCPSEA, 2011b). More evidence of BCPSEA's supportive position comes from its resource website which features research articles collated from various sources, including the 2010 PTC Report, on the theme of 21st Century educational changes. The selection of articles reflects the affirmative positioning of BCPSEA on the issue. A more detailed summary of BCPSEA related findings is with regarded to 21CL can be found in Appendix III on page 178.

BC Confederation of Parent Advisory Councils (BCCPAC)

This study did not uncover many documents relating to the BCCPAC with respect to personalized learning or the BC Education Plan. From what has been found, it would appear that the BCCPAC is in principle supportive of 21st Century Learning but is of the view that it should

be developed through engagement with all education partners (BCCPAC, 2011). It can also be inferred that BCCPAC is in the learning phase of understanding what personalized learning entailed, as evident through the inclusion of an article about it in its Fall 2011 Newsletter to educate parents (Hopkins, 2011). The article touched on notions of personalized learning that are mainly aligned with the "Personalized Learning in BC: Interactive Discussion Guide" and referred readers to the online interactive discussion guide for further information. A more detailed summary of BCCPAC related findings related to 21CL can be found in Appendix III on page 180.

Students

In 2010, the BCPVPA organized a 'Spring Student Voice' provincial meeting which posed Grade 10-12 students from the 15 regions in the province with the question "What will learning be like in the 21st century?" The inputs of the students were published in the Student Voice publication "Learning in the 21st Century" (BCPVPA, 2010). President of the BCPVPA, Marilyn Merler, later reported that Minister MacDiarmid shared many ideas derived from the publication during the 4 June 2010 Learning Roundtable with the various presidents of the organizations of educational partners, showing that the publication was considered at the Ministerial level (BCEd, 2010a). When the "Personalized Learning in BC: Interactive Discussion Guide" was launched, it was alluded that students' inputs from the publication was considered in Minister George Abbott's foreword:

> We've asked students how they believe we can get from good to great; how we can bring personalized learning into their classrooms. Now, we'd like you to respond to the same questions. We'd like you to tell us how you think we can use personalized learning to take British Columbia's educational system from good to great (BCEd, 2011d, pp. ii.).

The inputs collated from the students were highly congruent with the notions of personalized

learning presented in the BC Educationa Plan. Summaries of the students' inputs from the

Student Voice exercise at the 2010 Spring Student Voice provincial meeting can be found in

Table 10, page 182 of Appendix III.

CHAPTER 5: FINDINGS - SINGAPORE

This section summarises the findings on the emergence and conceptions of 21ˢᵗ Century

Learning (21CL) related policies in Singapore. In Singapore, the term used is "21ˢᵗ Century

Competencies". To begin, the impetus for policy attention that led to 21CL related policies will

be presented. This is followed by a report of the guiding principles drawn up by policy makers to

define the scope of policy considerations. The salience of 21CL notions arising from these

considerations will then be rationalised from the lens of global and domestic factors. Next, the

conceptions of 21CL policies as well as the considerations and actual steps taken to implement

them will be recounted. No documents were surfaced on stakeholder positioning in Singapore.

The implications of this will be dealt with in the chapter on discussion. This section ends with a

tabular synthesis of the findings on 21CL from both BC and Singapore.

"Preparation for the Future" as Impetus for Reform

In Singapore, "21ˢᵗ Century Competencies" were introduced by the "Curriculum 2015

(C2015)" committee. This was a committee tasked with studying the issue of what students

should be taught to ensure they are ready for the future. The overarching issue of preparing

students for their future social and economic lives is not new but a perennial focus of the

Ministry of Education that frames many of its educational policies. In Singapore, the notion of

preparation is reflected in the Ministry's mission on its website (SMOE, 2012a) as well as in

various ministry documents such as "Recent Developments in Singapore's Education System:

Gearing up for 2015" (SMOE, 2008b):

> The mission of the Education Service is to mould the future of the nation, by moulding
> the people who will determine the future of the nation. The Service will provide our
> children with a balanced and well-rounded education, develop them to their full potential,

and nurture them into good citizens, conscious of their responsibilities to family, society and country (SMOE, 2012a, pp. 1).

We will continue to take stock at regular intervals and take appropriate measures to ensure that our education system meets Singapore's social and economic manpower needs in the 21st Century (SMOE, 2008b, pp. 9).

It is in this context of "preparation" that the Ministry established the C2015 committee comprising ministry and school personnel in 2008. To envision what students should be taught to better prepare them for the future, the starting point of the team was to ask what a child born in 2008 (and hence entering the school system in 2014 and starting work around 2030) would need "in order to excel in the future environment driven by technological advancements and globalization" (Ng, 2008). The committee eventually published the "Nurturing our Young for the 21st Century" document (SMOE, 2010a). As illustrated from the following quotes, the committee recommended through the document the student outcomes that each child should be nurtured into a "confident person, self-directed learner, active contributor and concerned citizen" and that to achieve this every child would need "21st Century Competencies" (the definitions of these student outcomes and competencies will be discussed in the section on conceptions of 21CL in Singapore):

How do we prepare our children today to thrive in a future driven by globalisation and technological advancements? Schools provide a strong academic foundation for our young. To help our children thrive in a fast-changing world, schools and parents need to work hand-in-hand to help them develop 21st century competencies (SMOE, 2010a, pp 2).

The Ministry of Education (MOE) will implement a new framework to enhance the development of 21st century competencies in our students. This will underpin the holistic education that our schools provide to better prepare our students to thrive in a fast-changing and highly-connected world (SMOE, 2010b, pp 1).

69

Guiding Principles for Policy Formulation

Insights into the criteria used to scope the range of considerations will shed light on how particular domains of knowledge may emerge as more important than others in the process of policy formulation. To determine the scope of its considerations, the C2015 Committee evolved a set of principles to decide which bodies of knowledge to pay attention to and how to approach the bodies of knowledge in addressing its task objectives (SMOE, 2008b). These principles are (SMOE, 2008b, pp. 3):

- **Strong fundamentals.**
  High standards of knowledge, skills and values are maintained, especially in key areas such as languages, mathematics, science, humanities and physical well-being.

- **Future orientation**.
  The curriculum is reviewed on a regular basis and incorporates future learnings for students to live and work as fully-functioning adults.

- **Broad-based and holistic curriculum.**
  Students access learning in the cognitive, moral, social, physical and aesthetics domains (see page 184 of Appendix IV for details of these domains)

- **Finer customization of learning.**
  Curriculum, pedagogy and assessment are customized according to students' profiles, interests, abilities and talents so that they can maximize their individual potential.

- **Challenging and enjoyable learning.**
  Learning is a positive and fulfilling experience for all students as they learn in and outside the classroom. There is high expectation for all and strong teacher-student relationships. The curriculum stretches capable students and scaffolds less able students to enable them to experience success.

From the above principles, the committee derived the vision of "Strong Fundamentals, Future Learnings" to direct and guide its work (SMOE, 2008b). Amongst the principles, "strong fundamentals" and "future orientation" are the two most clearly reflected in the vision. The need to retain the core strengths of the system while targeting new educational outcomes is regarded as a key strategic consideration that guides educational reform in Singapore, as is also endorsed

by two separate Education Ministers:

> These new dimensions in educational outcomes should not mean that we jettison or dilute our core strengths. We must retain our strengths in maths and science. Technology continues to give countries the decisive edge, bringing about dramatic improvements in growth. (Ng, 2008, pp. 6).

> But between academic achievements and values, it must not be "either/or". We should strive to achieve both. For us, we have a strong foundation and we must continue to build on it. (Heng, 2011, pp. 6).

Rationale for Salience of 21st Century Competencies

In its work, the C2015 committee visited education systems abroad and also surveyed a broad spectrum of stakeholders to glean insights to inform their review. The stakeholders included educators, parents and employers (Ng, 2008). The notion of 21st Century Competencies arose from studying other educational systems and from literature review on 21st Century Skills. It gained further salience because of its applicability to the context of Singapore. The factors that conferred salience to 21st Century Competencies could thus be summarised as:

i.   International Educational Trends

ii.   Relevance to Local Contexts

International Educational Trends

From its study, the committee found that education systems around the world had also factored in the impact of future trends and challenges on educational demands. A common thread is the emphasis on equipping students with the ability to navigate a fast changing, globalized world by what is termed as 21st Century skills (Ng, 2008). The committee's studies on 21st Century Skills included the versions forwarded by the Partnership for 21st Century Skills (2009),

enGuage 21st Century Skills (Literacy in the Digital Age) by the North Central Regional

Educational Laboratory (NCREL) and the Metiri Group (NCREL & The Metiri Group, 2003)

and OECD's Project DeSeCo (Definition and Selection of Competencies) (OECD, 2005). These

versions surfaced overlapping sets of competencies (see tables 1, 2, 3 on page 185 in Appendix

IV for details) which included digital/technological literacy, information literacy and cross-

cultural literacy. As the next section shows, these competencies are highly relevant in the context

of the C2015 committee's aim of preparing students for their future social and economic lives in

a fast changing world driven by globalization and technological advancements.

<u>Applicability to Local Context</u>

The relevance of 21st Century Competencies for the Singaporean context further

strengthened their salience, as reflected from a consideration of the following contexts:

    i.   Educational

    ii.   Cultural

    iii.   Socio-economic

    iv.   Political

<u>Educational Context</u>

The notion of "skills" for the 21st Century is not new and has been a target area of

educational change as early as the late 90s. During the 1998 World Economic Forum Annual

Meeting and in the joint statement from the 2000 Asia-Pacific Economic Cooperation (APEC)

Education Ministerial Meeting, the Singapore Minister for Education had stressed the importance

of lifelong learning as an answer to preparing students for a future of rapid and continuous

change in the 21st Century:

The future will be one of change and increasingly rapid change. Much of the specific skills that our young learn in schools and universities will become obsolete soon after they complete their formal education. Even those skills they acquire at work will become outdated very quickly. At the same time, advances in Medicine continue to lengthen people's life expectancy. This will lead to an increase in the average working life of a person. No worker or even professional, for that matter, can expect a single set of skills or knowledge to last him a lifetime. Learning in the 21st century will have to be a lifelong process, akin to a long-distance race. Formal education must lay the foundation for this lifelong process of learning and re-learning. Our schools and universities must develop in our young the core skills and competencies, as well as mindsets that will enable them to learn continuously throughout their lives (Teo, 1998, pp. 1).

The Ministers acknowledged that the world is now truly the global village it was once envisaged to be. Economies have become more inter-connected and interdependent, and this will continue to be more so in the future. In the new millennium, technology and information networks will continue to re-orientate how economies communicate with each other. The Ministers observed that the new century will be marked by rapid social and economic change, brought about largely by advances in science and technology. The knowledge-based economy will see the rise of new businesses and industries. In such a world, knowledge and its effective application will become the important assets for economic and social advancement. Education must equip the workforce with relevant knowledge and skills for the new economy and society of the 21st century (SMOE, 2000, pp. 1).

Back then, the Minister pointed out technological skills; creativity; learning skills and a passion for lifelong learning as the main skills and competencies that education should provide for students to prepare them for the 21st Century. At the same time, values and citizenship education is needed to develop in students a strong sense of rootedness to the nation accompanied by the desire to contribute to the community (Teo, 1998).

The current focus on 21st Century competencies can be seen as aligned with the evolution of educational development in Singapore. In 1997, the MOE set out the vision of "Thinking Schools Learning Nation (TSLN)" which led to a reexamination of all current practices with the view to meet challenges of the globalized future characterized by rapid and constant changes where knowledge and innovation are key drivers of a nation's wealth (Goh, 1997). As is apparent, the motivations then and now are essentially identical. Under TSLN, reviews were

73

made in areas including curriculum and assessment to develop creativity and habits of

independent learning among students. MOE also embarked on the implementation of a

Masterplan for InfoComms Techonology (ICT) in education and the development of a

comprehensive strategy for national education (i.e. citizenship education). These same themes of

creativity and lifelong learning, technological literacy and citizenship education are also evident

in the current findings of 21st Century competencies uncovered by the C2015 committee. The

current emphasis on 21st Century Competencies can thus be interpreted as a revitalization which

seeks to further solidify and deepen efforts in the identified areas with a renewed focus.

Furthermore, while it is recognized that the current education system has a rigorous

curriculum, innovative methodology and a dedicated cadre of educators, it is also acknowledged

that to serve students well in the new economy, the system needs to strengthen the nurturing of

soft skills and values in order to achieve broader educational outcomes (Ng, 2010a):

> …. our challenge today is to rebalance the emphasis on knowledge acquisition with development of skills and inculcation of values. While Singapore has strong academic standards in math, science and literacy, we could do better in developing soft skills and competencies such as critical thinking and creativity among our students (SMOE, 2010c).

The requisite type of soft skills, competencies and values, such as critical thinking and

creativity, fits well with the very skill sets that "21st Century Skills" studies like those researched

by the C2015 committee advocate.

Cultural Context

In an interview with Ontario-based TVO Parents, a previous Minster for Education

reflected that "there is great alignment between what parents want, what are expected of students

and what schools teach" (Ng, 2010c). This is echoed by the present Minister, who said during a

speech in 2011 that "there is a shared belief across Singapore society that education is crucial in

building up individual and collective capacity, and in strengthening the cohesiveness[14] of our

nation beyond knowledge and skills. Parents, universities, and employers appreciate the rigour

and strength of our system. Many parents I have met appreciate the hard work put in by our

schools and teachers. Clearly, there is a high level of interest in, and support for the work we do"

(Heng, 2011, pp. 2). Indeed, the broader societal context of a strong culture of respect for

learning and hard work is acknowledged as a powerful supporting factor for the work of the

Ministry in schools (SMOE, 2010c). Thus, the move to emphasize 21st Century competencies, as

with any move in education towards better preparing students for the future, would be perceived

as logical by the populace, including educators and the public.

Socio-economic context

> The importance that Singaporeans attach to education reflects the larger role that education plays in Singapore's economic and social development. Education is not merely about allowing individuals to discover their strengths and realise their potential, but is also regarded as a critical pillar for supporting economic growth and building a nation. As a city-state plugged into a global economy, our imperative is to constantly innovate in order to stay competitive, while building a distinctive national identity (SMOE, 2010c, pp. 2).

In Singapore, a strong relationship between education and the larger socio-economic

context exists:

From this perspective, the twin forces of globalization and technological advances and their

impact on Singaporean society point strongly to the need for the skill sets encapsulated in the

"21st Century Skills" studies from social and economic angles.

---

[14] This is interpreted to mean cohesiveness of Singaporeans as fellow citizens.

For instance, it was discerned that the Internet revolution ushered in by technological advancements has given ubiquitous access to information, requiring that students have the appropriate information and communication skills to manage the information they encounter:

> With the Internet Revolution, information is often literally just a click away. It is important that our young know what questions to ask, how to sieve information and extract that which is relevant and useful. At the same time, they need to be discerning so that they can shield themselves from harm, while adopting ethical practices in cyberspace. Importantly, they should be able to communicate their ideas clearly and effectively (SMOE, 2010a, pp. 6).

The Minister for Education also highlighted his sense of the need for these skill sets, including the ability to solve problem using interdisciplinary approaches, in a 2008 speech:

> The premium is therefore no longer on collecting facts but on critical analysis - knowing what questions to ask, what information you need and the value of different sources of information. I visited one of the JCs *(i.e. senior high school)* recently and asked the students how many of them read the newspapers as a main source of information. Less than half did so. Where do they get the information from? They scan the Internet. That's a problem. You don't know how reliable the source of information may be or how authentic it is.

> Students cannot be just mere passive conduits of information. They will need to be able to connect between different interfaces and domains. They will need to approach problems with an inter-disciplinary lens and integrate the sciences and humanities to solve problems.

> Take for instance the new models of phones, including Apple's I-phone or Google's G1. Why are they runaway successes? Not because of technology, fashion or marketing alone, but a combination of all these elements. Behind the product, powerful minds and intensive research went into not just the technology, but also to understand what humans prefer and how they work. Thus the sleek design with touch screens, better icons and seamless navigation. We have to teach our students to go beyond simply acquiring knowledge, towards exploiting it to improve lives. How do you teach this? (Ng, 2008, pp. 5)

Concurrently, it was pointed out that globalization is changing the nature of Singaporean society, emphasizing the need for students to have cross-cultural skills and a global mindset in order for them "to take advantage of the opportunities in the globalized world" (SMOE, 2010b):

> Our society is becoming increasingly cosmopolitan and more Singaporeans live and work abroad. Our young will therefore need a broader worldview, and the ability to work with

people from diverse cultural backgrounds, with different ideas and perspectives. At the same time, they should be informed about national issues, take pride in being Singaporean and contribute actively to the community (SOME, 2010a, pp. 6).

We need to ensure that Singaporeans can excel in the future workplace. Our students will need language skills and a larger worldview, coupled with the ability to work in and lead teams of people with diverse cultures, ideas and perspectives. More than ever, they will need good interpersonal and leadership skills to forge consensus and provide direction. They will also need to be able to find solutions to complex problems in different geographical regions (Ng, 2008, pp. 6).

It is also recognized that globalization presents a challenge to students' values and sense of rootedness, which warrants the need to strengthen their sense of identification and belonging to the community and nation through civic literacy, which is one of the 21st Century competencies:

… knowledge and skills must be anchored by values and character development. While we constantly say that we help every child go as far as he can, the ultimate goal is self-sufficiency, not self-centredness. Without a moral and ethical compass that our schools should help provide, all knowing will come to nought. It takes one mistake to erase all the good work that you have done. Our education system must also impart societal and universal values, such as the aptitude for life-long learning, resilience, integrity, compassion and the responsibility to give back to the larger community. Parents and family continue to be primarily responsible for imparting values to the children but schools have an important supporting role. Each complements the other, and both are needed (Ng, 2008, pp. 6).

Socio-economically, globalization and technological advances have thus created the need for 21st Century Competencies to prepare students for the future.

Political Context

Because Singapore has no natural resources except for her people, education is seen by the government of the day (since 1959) as a long term strategic investment to ensure Singapore's continued success and survival:

77

People are our most precious resource. Every citizen is valuable and has a unique contribution to make. Through education every individual can realise his full potential, use his talents and abilities to benefit his community and nation, and lead a full and satisfying life (SMOE, 2012b, pp. 1).

A nation's wealth lies in its people - their education and training, their adaptability and cohesiveness. In a recent study of 192 countries, the World Bank concluded that human capital accounted for on average 64% of the productive wealth of a country – substantially more than the physical capital and natural resources combined. The study makes an important point. In the new economic world, the decisive factors in wealth creation are human in nature: human ingenuity in creating and harnessing scientific and technological advances; human adaptability in the face of unrelenting change; and the social organisation to fully exploit these talents. Education will be central to how nations fare in the 21st Century. Countries that are able to educate their people to learn and adapt to change more quickly, will distinguish themselves from the rest. (Teo, 1998, pp. 1)

As such, the government commits itself to investing in education. For instance, the educational budget continued to see a year on year increase for the past decade even during economic downturns (Ng, 2011). The premium placed on education is not only economic in motivation but also includes the promotion of inclusiveness through education as a social leveller, as is summed up by the Minister's speech during the 2010 Committee of Supply debate on the education budget:

We engage and listen to MPs in this house as well as broad segments of society for their views on education as an on-going exercise. We view education reform as a continuous journey to equip each generation of Singaporeans adequately for their future. The Government is committed to continue this major focus on Education. We do this not only because it is critical for our economic competitiveness but for Singaporeans, it enables them to move up…. For those who come from low income families, it provides the uplifting power to break the poverty cycle" (Ng, 2010a, pp. 1).

…. social mobility stands at the heart of our education policies, indeed our whole of Government initiatives …. Let me assure this house that enabling social mobility will continue to be a hallmark of our education system. MOE believes that education can and should uplift individuals and families (Ng, 2011, pp. 3).

To conclude, there is thus strong resource support from the political leadership helming the ministry in meeting sound educational needs. This extends to the 21st Century Competencies related policies.

Singapore's 21CL Policy - The "21ˢᵗ Century Competencies" Framework

 As a result of the C2015 Committee's work, a conceptual framework for 21ˢᵗ Century

Competencies and the Desired Student Outcomes was developed to guide teachers and school

leaders in this area of work in schools. This section will focus on expounding the conceptions of

21CL contained in the framework.

Framework for Desired Student Outcomes and 21ˢᵗ Century Competencies (21CC framework)

 The 21 CC framework delineates 21ˢᵗ Century competencies to be critical and inventive

thinking; civic literacy, global awareness and cross-cultural skills; as well as information and

communication skills. The framework is depicted in Figure 2. The definitions for the desired

student outcomes and the summary of the components of the framework are summarised in

Table 8 and 9 following the diagram (SMOE, 2010a).

Figure 2: Framework of Desired Student Outcomes and 21ˢᵗ Century Competencies
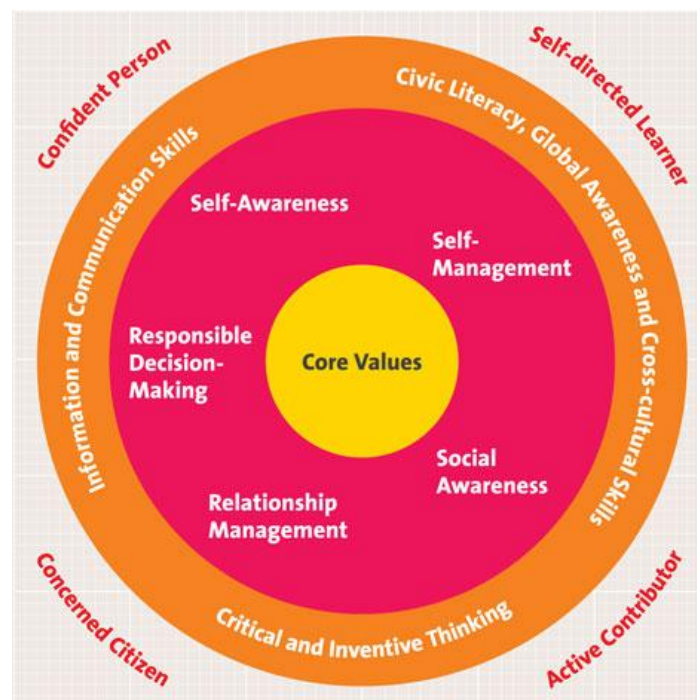
Table 8: Desired Student Outcomes

Student Outcome	Description
Confident Person	A confident person has a strong sense of right and wrong, is adaptable and resilient, knows himself, is discerning in judgment, thinks independently and critically, and communicates effectively.
Self-directed Learner	A self-directed learner questions, reflects, perseveres and takes responsibility for his own learning.
Active Contributor	An active contributor is able to work effectively in teams, is innovative, exercises initiative, takes calculated risks and strives for excellence.
Concerned Citizen	A concerned citizen is rooted to Singapore, has a strong sense of civic responsibility, is informed about Singapore and the world, and takes an active part in bettering the lives of others around him.

Table 9: 21st Century Competencies[15] Framework

Core	Values – Knowledge and skills must be underpinned by values. Values define a person's character. They shape the beliefs, attitudes and actions of a person, and therefore form the core of the framework of 21st century competencies. The values in the framework are not MOE values per se but are shared national values. Educators and parents can build on these core values to introduce others to reflect the distinctive ethos of their schools and students (Ng, 2008).	Respect; responsibility; integrity; care; resilience; and harmony.
Middle Ring	Social and Emotional Competencies — skills necessary for children to recognise and manage their emotions, develop care and concern for others, make responsible decisions, establish positive relationships, as well as to handle challenging situations effectively.	Self-awareness; self-management; social awareness; relationships management; and responsible decision-making.
Outer Ring	21st Century Competencies – skills necessary for living and working in the globalised world	Civic literacy, global awareness and cross-cultural skills; Critical and inventive thinking; information and communication skills

---

[15] The definitions of the values, socio-emotional competencies and 21st Century competencies are available in Tables 4-6 in Appendix IV on page 189-191.

Implementation Considerations

It was acknowledged by the Ministry that 21st Century competencies are hard to teach and their outcomes even harder to measure (Heng, 2011). While it was recognized that many of the competencies and values in the 21st Century Competencies framework are already covered in learning experiences in schools, the gap remains that schools need to aim at striking a better balance between students' learning of content knowledge and their acquisition of the necessary competencies and values delineated by the framework (SMOE, 2010b). Apart from adopting a whole-school approach to addressing this balance (Ng, 2010a), another way being explored is for schools to themselves become models of 21st Century Competencies in creativity, innovation and collaboration. For this, schools were suggested to form collaborative networks to collectively innovate and address the common challenges they meet and then diffuse their innovation across the system (Heng, 2011). Schools are also encouraged to continue to reach out to parents and the community as education partners because educating students about values and competencies cannot be accomplished by educators alone (Heng, 2011). Notwithstanding systemic measures that will be put in place to support the move towards 21st Century competencies, its success is also noted to ultimately depend on the conviction and role-modelling of school leaders and teachers of the encompassed values and competencies (Fu, 2010, Heng, 2011).

Implementation Strategy – "Tight, Loose, Tight" Approach

In terms of implementing the framework, a "tight, loose, tight" approach was utilised (SMOE, 2008b). "This means a clearly defined educational philosophy in school leadership, clear strategic intents and direction to guide the national and school-based curriculum; school autonomy to innovate at school and classroom level; and a comprehensive mechanism to

evaluate if students have acquired the learning outcomes as well as to ensure school accountability" (SMOE, 2008b, pp. 3). To support schools' efforts in enhancing the development of 21st Century Competencies, the Ministry proposed/enacted the implementation policies summarised in Table 10 below (SMOE, 2010a, 2010b, 2010c, 2010d, Ng, 2010b, Heng, 2011):

Table 10: Policy Instruments for Implementing 21st Century Competencies Framework

Redefining curriculum, pedagogy and assessment	**Teaching and learning of 21st Century Competencies will be emphasized through the total curriculum comprising the academic curriculum and a vast range of co-curricular activities.** The latter is seen as an authentic platform for cultivating soft skills and values while allowing pupils to identify their interests and talents. To promote a global outlook, schools will be funded towards realizing the goal of ensuring that every student will have at least one overseas learning experience in primary school, secondary school and junior college (senior high school). **Assessment will be broadened to include 21st Century Competencies.** Expectations and learning outcomes based on the competencies will be articulated across the entire curriculum in the next curriculum review cycle in 2012-2014. The standards and benchmarks developed will form a common point of reference for the ministry and schools. MOE will also be working with primary schools to balance the use of written examinations with alternative assessment modes by developing tools for holistic feedback and assessment. For instance, mid-year and end-of-year examinations for Grades 1 and 2 students were abolished. From 2012, all primary school students will be provided with an individual Holistic Development Profile, which will record each student's progress in developing these competencies. This will help parents to better understand their own child and work with schools to chart their child's learning.

	Character and Citizenship education (CCE) will be enhanced to include the emphasis on the values and competencies during lessons and learning experiences. Guidance periods introduced will also allow teachers to know each child individually and give them the opportunity to share and discuss their students' developmental profile and needs with them. A dedicated CCE unit within the MOE was also set up to oversee CCE efforts.
Building teacher capacity to teach 21st Century Competencies	MOE will also build teacher capacity to deliver these 21st century competencies through the provision of pedagogical exemplars, training and professional sharing. A 21st century teacher education model aligned with the 21st Century competencies framework had also been developed by the university for pre-service teachers.
Signalling the importance of 21st Century Competencies	**Teachers** – The development of 21st Century Competencies will be included as part of teachers' self-evaluation in their work performance. Recognition will be given to teachers who are outstanding in delivering 21st Century Competencies **Administrators** – The development of 21st Century Competencies will be included as part of schools' self-evaluation. Evaluation frameworks will be developed at both the systemic and school level to inform organizational learning and programme improvement.

Complementary Initiatives

The implementation of 21st Century Competencies related policies were also complemented by the following parallel but related MOE initiatives:

i.   Strengthening the quality of Physical, Art and Music (PAM) Education

ii.   Info-Communications Technology (ICT) Masterplan 3

iii.   Single session structure for all primary schools

iv.   Professional Learning Communities

<u>Strengthening the quality of PAM education</u>

Although it was noted that there are opportunities to develop 21st Century Competencies in students through all subjects, the PAM subjects were identified to lend themselves particularly well to the development of 21st Century competencies (Tan, 2010). The PAM subjects were seen as able to help students develop physical robustness, enhance their creative and expressive capacities, as well as shape their personal, cultural and social identity. As such, measures were taken to strengthen the quality of PAM education (see Table 7 in Appendix IV on page 191 for details).

<u>Info-Communications Technology (ICT) Masterplan 3</u>

The ICT Masterplans (see Table 8 in Appendix IV on page 192 for details) seek to enrich and transform the learning environments of students and equip them with the critical competencies and dispositions to succeed in a knowledge economy in which technological literacy is critical. The third Masterplan represents a continuation from the first and second Masterplans. One of its objectives is to strengthen integration of ICT into curriculum, pedagogy and assessment to enhance learning and develop 21st century competencies such as self-directed learning and collaborative learning. In this regard, ICT will be more extensively integrated into the planning, design and implementation stages of the curriculum, assessment and pedagogy. There will be greater alignment of students' learning outcomes in the syllabi, national examinations, and classroom experience with 21st century skills such as IT skills, communication skills and collaboration skills. Students will be required to use ICT to look for information, synthesise reports, give feedback on each other's work and collaborate with peers within and outside school (SMOE, 2008a).

<u>Single session structure for all primary schools</u>

The MOE will systematically convert all primary schools to a single session structure by 2016 (SMOE, 2009). This will provide an even more holistic learning experience for students as more time and flexibility is created for organising the school day. Pupils will be able to benefit from more contact time with their teachers and higher teacher-pupil interaction. It will also allow teachers to use the classroom environment more fully to achieve learning outcomes for students in the morning session, without being constrained by having to evacuate the classroom for students attending school in the afternoon. Furthermore, schools can set a common time for greater professional exchange for teachers from all levels. This will facilitate the interaction of teachers from all levels such that they can learn from one another to raise the level of instruction, and allow for seamless mapping of curriculum and teaching strategies from across all primary grade levels (SMOE, 2008b).

<u>Professional Learning Communities</u>

Lastly, to allow teachers to deepen professional capabilities through sharing and reflection, the MOE launched the Academy of Singapore Teachers, the English Language Institute of Singapore, the Physical Education and Sport Teacher Academy and the Singapore Teachers' Academy for the Arts between 2010-2011 (Heng, 2011). These institutions function as national level Professional Learning Communities (PLCs). Many schools have also set up PLCs so that teachers can learn from each other. The PLC initiative can be seen as a natural extension of the "Teach Less, Learn More (TLLM)" movement of 2005, which aim was to promote learner-centered teaching strategies. Under TLLM, school-based, teacher-led curriculum and pedagogical innovations were encouraged to promote greater student engagement that focused

85

on teaching them for life through quality classroom interaction, opportunities for expression, character building and cultivation of lifelong skills, instead of teaching them for tests and examinations (SMOE, 2010c). In the context of 21st Century competencies, the PLC initiative serves to allow teachers to share and learn from one another as they move to incorporate these new competencies in teaching and learning.

Conclusion: Synthesis of Findings on 21CL in British Columbia and Singapore

Table 4 on the following page synthesizes the findings on 21st Century Learning in British Columbia and Singapore according to the common categories of "major school reforms, themes and goals", "policy assumptions", "purpose and mandate of schooling", "governance and organizational form", "conception of 21st Century Learning", "curriculum structure", "instructional strategies", "implementation strategies" and "stakeholder responses".

Table 11: 21st Century Learning Policies in BC and Singapore

	Policy Language Used	
Dimension of public education	British Columbia	Singapore
Major school reforms, themes and goals	Modernisation of education system to enable greater personalization and pertinence of students' learning with stronger involvement of partners in education. The objective is to prepare students for the challenges of a globalised and fast changing world driven by the knowledge economy for individual and collective benefits of BC. Direction and content of change are referenced from international trends and the evolving nature of local contexts.	Strengthening of emphasis on teaching and learning of 21st Century competencies through further refinement of focus. Reform builds on previous efforts to meet challenges of the globalised and fast changing world driven by the knowledge economy. Direction and content of change are referenced from international trends and literature as well as the evolving nature of local contexts.
Policy assumptions	Collective material well-being, political freedom and cultural development are intertwined with the ability of the province to achieve a superior capacity for creativity, innovation and economic productivity in an arena of global competition for the benefits of individuals and the province.	Education must ensure the livelihood of the individual and the survival and success of the nation. It should be future oriented to produce future-ready, well-balanced individuals who are strongly rooted citizens and also part of an economically competitive workforce.
Purpose and mandate of schooling	The principal mandate of public schools is to enable the province and its population to be responsive to changing conditions within the knowledge-based economy of the global market.	The principal mandate of schools is to maximise individual potential, and to enable the socialization and training of students for their future social and economic lives as citizens and members of the workforce to ensure national solidarity and prosperity.

Governance and organizational form	The ministry is part of a wider network of education stakeholder groups which possess differing degrees of independence and power of influence. Range of stakeholder engagement process employed include informing and explaining of policies, gathering of feedback to proposed policies with the involvement of some in co-creation of policy alternatives as part of policy formulation. Notably, students' voices were included in the formulation of the 21st Century Learning policy.	The ministry coordinates the wider network of education stakeholder groups which take reference from it. Range of stakeholder engagement process employed is mostly informing and explaining of policies, gathering of feedback to proposed policies with the involvement of some in co-creation of policy alternatives as part of policy formulation.
Conception of 21st Century Learning	Outcome – Personalised Learning with 21st Century skills and competencies 21st Century Skills – Reading, Writing, Numeracy 21st Century Competencies – Social responsibility, global and cultural understanding, environmental stewardship, healthy living, ethics, collaboration, creativity, innovation, critical thinking, problem solving, digital literacy.	Outcomes – confident person, self-directed learner, active contributor, concerned citizen Values – respect, responsibility, integrity, care, resilience, harmony Socio-emotional competencies – self-awareness, self-management, social awareness, relationship management, responsible decision-making 21st Century competencies – civic literacy, global awareness and cross cultural skills; critical and inventive thinking; information and communications skills

Curriculum structure	Curriculum will be re-designed to reflect 21st Century skills and competencies as well as enable personalised learning. The curriculum will be revamped to allow for a decreasing dependence on a core curriculum so as to allow for greater self-directed, interest-driven, independent learning as students progress through the system. This will be accomplished by a reduction of prescribed learning outcomes, greater integration of students learning with their other learning activities outside school and stronger collaboration with parents and the community for guidance and learning resources. It is envisioned that at the higher grade levels, school will just be a base camp where students make appointments with teachers to discuss their learning progress or go to for just-in-time, needs-based learning.	The existing curriculum will be redesigned and refined to better reflect the emphasis of soft skills and values encapsulated in the 21st Century Competencies framework. For instance, this operationalizes through added emphasis on physical, art and music education, character and citizenship education and co-curricular activities. The refinement will be coupled with accompanying assessment mechanisms for 21CC that will be developed by 2014. High stakes national examinations will continue.
Instructional Strategies	Constructivist approaches, namely project and problem-based, interdisciplinary learning will be employed with teachers as facilitators of learning. There will be greater technology use to support the shift to personalised learning.	There are no explicit changes mentioned on teaching practices. The continuing emphasis on teacher led, school-based curricular and pedagogical innovations under the TLLM and PLC movements remain but with the added dimension of 21st Century competencies as a new curricular goal.

Implementation strategies	Quality teaching and learning –Teachers will be supported through training and performance management as they transition to personalised learning. Pre-service teacher training will also be reviewed to ensure quality inflow of new teachers. Flexibility and choice – Different educational programmes and blended learning will be provided. Constraints on the school calendar were also removed via legislation to increase responsiveness of school districts to students' needs, thus enabling better personalised learning. High standards – These will also be maintained through quality provincial and classroom assessment, timely interventions to address student needs and better reporting of outcomes to education partners. Learning supported by technology – Measures will be explored for smarter use of technologies to enable personalized learning.	Quality teaching and learning – Teacher capacity for delivering the curriculum will be provided via pedagogical exemplars, training and professional sharing. Pre-service teacher training is also reviewed and redesigned for alignment. Accountability measures – Evaluation criteria for teachers' and schools' self-assessment in the cultivation of 21st Century competencies in students will be developed, with recognition given to outstanding educators in the area.
Stakeholder responses	BC's plan for 21st Century Learning enshrined in the BC Education Plan has met with uneven reception by education stakeholders. While BCSSA, BCPVPA, BCPSEA are essentially supportive, BCSTA has expressed conditional support. Most critically, BCTF as the representation of the teaching fraternity has strongly contested the premise and promise of the plan in a vocal and public manner.	No information was surfaced in this study regarding stakeholder responses to the 21st Century Competencies framework.

As reflected in the table, there are similarities and differences in the emergence and conceptions of 21CL in BC and Singapore which provides the fodder for further discussion. First of all, as can be seen in the impetus for school reform, policy assumptions as well as purpose and mandate of schooling, BC and Singapore hold an instrumental view of education, in which its role for province and nation building through economic competitiveness in the KBE ranks as a significant motivator for policy directions such as 21CL. The consequential tensions arising from the instrumental use of education especially for economic purposes will be explored in the next chapter.

As a reflection of the impingement of globalization on state policy making, the salience and emergence of 21CL in both jurisdictions are also observed to have been strongly influenced by discourses from international educational trends. These included the need for lifelong learning – a discourse popularized by global actors (e.g. the OECD) – as well as the pressure to keep abreast with other jurisdictions that had already embarked on 21CL in order that students as the future workforce possess a competitive edge. Even so, the local adaptation of 21CL had resulted in somewhat different policies in each jurisdiction. While both jurisdictions emphasize 21st Century competencies such as creativity and innovation, critical thinking and problem solving, digital literacy and cross-cultural skills, they differ in their approach to attaining these competencies. BC focuses on the process of learning, proposing personalized learning as a direction with constructivist and inquiry learning as a means to realise 21CL. Singapore conceives of 21st Century Competencies as mainly related to soft skills and values pertaining to student outcomes related to the self (confident person and self-directed learner) and the self in relation to others (as in active contributor and concerned citizen). As compared to BC thus, Singapore can be thought of as focusing on the "product" of learning in the sense of a certain learner profile to be actualized. Due to the different current realities on the ground in both jurisdictions, 21CL in BC heralds a more

fundamental revamp of existing educational practices to actualize personalized learning. In Singapore, the approach is to infuse and strengthen the soft skills and values embodied in the 21st Century Competencies into existing educational practices. These differences in implementation orientations also lead to different implementation challenges, which will be discussed in the next chapter.

Lastly, the different organizational form and educational governance of both jurisdictions and its corollary effect on stakeholder involvement and responses to the proposed 21CL policies will be discussed in the next chapter together with their implications on power distribution in policy making.

CHAPTER 6: DISCUSSION AND CONCLUSION

This chapter will discuss the findings of this study according to some of the common themes used to compare the two jurisdictions. These themes include reform themes and goals, salience of 21CL, conceptions of 21CL, implementation issues as well as education governance and organizational form (including stakeholder roles). Within each theme, any similarities, differences and tensions uncovered will be discussed together with their implications, and where relevant, recommendations for further action.

Reform themes and goals

While the exact policy language used is different, the essence is that BC and Singapore had considered the education system's need to prepare students for the knowledge-based economy (KBE) as a major impetus for reform (of which 21CL is the response). The central assumption in doing so is that the demands of the KBE of the 21st century are different from that of the industrial economy of the 20th century. This is encapsulated in the often deployed phrase that "the world has changed and will continue to do so rapidly and continually". However, as was espoused under the 'Introduction' chapter of this study and in the findings of BCTF responses, both literature that supports[16] and contests[17] the skills-gap posed by the KBE exists. To recap briefly, arguments for the skills demand of the KBE rests on increased competition over jobs which, due to globalization and technological advances, have become highly mobile in the direction of where expertise resides at the lowest cost. As such, economic competitiveness in the 21st Century demands a high-skill workforce with the capacity for lifelong learning, creativity, innovation and knowledge creation, application as

---

[16] See Powell and Snellman (2004) and the OECD (1996), as discussed on page 3-4 in Chapter 1 on "Introduction". Works by other scholars include Ashton and Green (1996), Brown and Hesketh (2004), Levy and Murnane (2004), as well as Rooney, Hearn and Ninan (2005) (as cited in Dimmock & Goh, 2011).

[17] See Livingstone (2004, as cited by Naylor, 2011) on page 155-156 in Appendix II under BCTF Responses. Works by other scholars include Brown, Hesketh and Williams (2002) and Felstead, Gaille and Green (2002) (as cited in Dimmock & Goh, 2011).

well as distribution (Powell and Snellman, 2004, OECD, 1996). It is obvious that similar arguments in support of adapting education for the KBE had found their way into BC and Singapore documents. Such arguments assume that gains in equity and inclusiveness may be attained by providing equal opportunities to students through education. In terms of opposing arguments, the BCTF had rightly pointed out the near silence on perspectives that question the KBE's claim of the need for pervasive up-skilling. These arguments are grounded in the perceived lack of empirical evidence of a commensurate increase in jobs that require those skills (Naylor, 2011a). Extending from this, Naylor (2011a) further questioned if issues of social equity and inclusive diversity in education had been sidelined in deference to economic agendas. As mentioned in Appendix II, Naylor notes the presence of other discourses, such as the "Multiliteracies" literature from the New London Group which presented an alternative vision of 21st Century Learning but for which the same global forces and technological advancements were seen as opportunities to educate for social equity and inclusive diversity. The "Multiliteracies" model of pedagogy aims to foster meaning-making across cultures in an increasingly diverse and globalized world, positioning this as a powerful tool to promote understanding and to tap into the considerable social, cultural, and economic assets of a multicultural environment for social equity and inclusive diversity (Naylor, 2011a). While economic competitiveness is not its primary aim, proponents of the "Multiliteracies" model also argue that it does serve the needs of the global economy because the latter furnishes economic contexts from which new languages or discourses may arise in multicultural and multilingual social and work spaces. In essence thus, Naylor (2011a) offers a model of 21CL that does not invoke concepts of the KBE or its associated skill sets such as life-long learning. He questioned if the omission of such alternative literature was not due to the challenge to the established orders of capitalism it poses.

94

In response, I suggest to first recognize that there are realities embedded within arguments from both sides, as evidenced through the research literature that supports and opposes the notion of the KBE. Hence, to disparage and reject the KBE's demand for new skills would be to write off the need for education to prepare students for employability within it. Furthermore, while jobs requiring low levels of technical knowledge and skills will undoubtedly continue to exist, the aim should be to prepare as many as possible to benefit from the KBE (Dimmock & Goh, 2011). By the same token, this focus on training and preparation should be pursued simultaneously with, and not in lieu of, the other purposes of education such as social equity and preparing students as full participants of democracy. The tension arises because these goals conflict with one another. For instance, it is well documented that the education system reinforces the cultural and economic reproduction of social classes in society with its bias towards students with the social and cultural capital for educational success. Because the dominant culture and practice privileged and propagated by school mirrors that of society, it entrenches systemic inequalities that directly conflict with the goal of social equity (Bourdieu, 1974, as cited in Nash, 1990). In the context of the current study, the move to reform education to meet the needs of the KBE is arguably one that conforms to this critique, especially with its emphasis on technological access. In the light of the conflicting economic and social goals to be addressed through education, how might thinking on the preparatory role of education proceed? In this respect, Strike (1985) provides some insight to consider the dilemma of the situation.

Strike (1985) tells us that any cogent political philosophy will generate a plurality of principles that may be in tension. This applies as well to the realm of education, as suggested by the preceding paragraph. Strike (1985) further argues that generally, the appropriate response is not to reject a view as self-contradictory because all of its ideals cannot be simultaneously realized. Instead, one should ask whether its aspirations and the means for

their realization can be balanced in some principled and effective fashion. I agree. To forsake any of the goals of preparation, socialization and equity discussed in the preceding paragraph would be unethical. To argue from the ethic of care and justice (Furman, 2004), education at its most fundamental owes it to students to ensure they are prepared for gainful employment; for full participation in a democratic society; as well as remains a viable vehicle for achieving social equity through social mobility. Though inadequate, I suggest that these factors are necessary as the preconditions for the (higher order) democratic discussions of what is the 'good and worthwhile life'[18] that education should enable in both BC and Singaporean society respectively. Seen from this perspective, it becomes more conceivable that all students deserve a chance to be prepared for the KBE but the approach should be differentiated to promote more equitable outcomes. Championing social justice should not be confused with protecting the disenfranchised from change, if that change impacts on their future. The question is how to remove barriers to parity of participation in school for such students (to make up for the lack at home as far as it is possible). The principle of parity-of-participation in which parity is defined as the "condition of being a peer, of being on par with others, of standing on equal footing", (Fraser, 1998, pp. 12, as cited in Waithman, 2009) requires the distribution of resources to ensure participants' independence and voice as well as the enacting of institutional patterns of cultural value which express respect for all participants and ensure equal opportunity for achieving self-esteem (pp. 6). If pursued resolutely and judiciously, it has the potential to allow disadvantaged students to ultimately achieve parity of participation in their future social and economic lives in society. In this regard, Hankivsky & Cormier (2011) present a nascent, multi-strand model to policy making that offer potential inroads towards better parity of participation. In a nutshell, the multi-strand model centers on using the intersectionality of different identity markers (such as

---

[18] Coulter and Wiens (2008) argue that this is the ultimate aim of education in any given society.

96

gender, ethnicity, ability, age, religion etc.) to locate the impact on and hence prescription of potential policies for different target groups. This model looks "beyond the most clearly visible dimensions of inequality to recognize multiple and intersecting disadvantages underlying the construction of subject positions" (Hankivsky & Cormier, 2011, pp. 219). It seeks to formulate policies that address the complex inequities arising from these subject positions. The model rejects the traditional approaches of trying to accommodate difference by targeting single identity markers by its recognition that subject position vis-à-vis policies are often created by intersecting social locations and that traditional approaches often lead to a false classification that does not reflect lived realities. As an example, instead of focusing on three policies that target single identity markers such as rural students, special needs students and immigrants students separately, the model would advocate drawing a matrix that defines all potential identity markers and considering policy solutions that arise from a consideration of how these markers intersect. Thus, a policy previously formulated to address say the personalized learning of special needs students but which inadvertently disadvantages immigrant and rural students will be eschewed as how the markers of immigrant status and geographic locations affect special needs students would be considered through their intersectionality with the issue. In other words, a policy that severely disadvantages a rural, immigrant special needs student would be avoided. In this way, greater equity in policy outcomes is achieved. While challenging and admittedly requiring political will because it mainstreams a non-utilitarian policy approach, the multi-strand policy model presents a possible alternative to policy formulation that addresses the need to balance between various competing goals of education while reducing inequities. Its potential for 21CL related policies could be explored.

Salience of 21CL

As have also been shown in this study, 21CL fell into BC and Singapore's radar from the external scans of international trends and their relevance to the local contexts of each jurisdiction. The emphasis on 21st Century education in BC and Singapore can be understood as a response to measure up to a globalised education policy discourse, in this case one constructed by the various international actors identified in this study, including the OECD, P21 and for the case of BC, the 21st Century Learning Initiative and the UK Innovation Unit as well. It illustrates the progressively global nature of national policies and its corollary policy borrowing and adaptation, which can be seen from the deployment of language similar to those used in publications by these actors in the 21CL policy discourses of BC and Singapore. The increasing encroachment of global pressure on national policy discourses arises because nation-states are relatively powerless to counter the strengthening global neoliberal[19] managerialism in educational policy (Wells, 2005). Rowelle and Lingard (2008) proposed to understand this from the emergence of a global education field that draws on Bourdieu's concept of a global economic field. The global education field is a structured global space with its own actors, logics of practice and power dynamics. It is where *educational measurement allows global comparisons between nations*, to which the latter and their *national policy fields have to strategically respond* (Rowelle & Lingard, 2008, p. 737). This is reflected in the current examples of 21st Century education initiatives in BC and in Singapore. With greater access to and reach of information, all educational systems are held more accountable as comparisons between systems are often studied and published (Ng, 2010d). Examples of such comparisons occur through PISA, TIMMS and studies produced by McKinsey & Company such as *"How the world's most improved school systems keep getting*

---

[19] Neoliberalism is a contemporary trend marked by deregulation, liberalization and privatization in line with free market economic principles (Steger & Roy, 2010). In education, its effects are the commodification of education, choice, competition and increased accountability (Stromquist, 2002).

better" (Chijioke, Barber, & Mourshed, 2010). In response, Zhao (2010, as cited in Hannon & Mackay, 2010a) had suggested that international comparisons through such instruments as PISA and TIMMS had resulted in the homogenization of curriculum, imposition of common standards and the narrowing of learning experiences.

Within this prevailing context, one may reasonably ask which segment of the global community is deciding what is important in education, why and whether "the homogenization of curriculum, imposition of common standards and the narrowing of learning experiences" is desirable. As an example, one facet of 21CL is the promotion of discourses of excellence built around technological literacy for the knowledge-based economy. This has led some (Naylor, 2011a, Sims, 2010) to question if the 21CL movement was not to benefit high-tech corporations who are among the key drivers behind it. Furthermore, if an education system does not discuss its policies in terms of 21CL in the KBE, would that mean that it is on the wrong track? These are questions with deep ethical implications and which demand critical analysis from policy makers in the policy formulation process. However the answers to these questions may not be as clear cut as critiques would suggest. For instance, Wells (2005) had discovered that although the transnational convergence of policy and practice in educational institutions is expected to occur when global trends are encountered in the local context, the homogenizing tendencies in policy discourse may result in convergence only at the macro level. At the micro level, evidence of hybrid practices often exists. Well (2005) explains this to be due to two reasons. First, without critical analysis of the "global" rhetoric at all levels of the policy-making process, the meaning of terms such as "equity" and "quality" become blurred as they are transferred between the global, regional, national, and local levels. Because of this, not only can hybridization occur in the language used in education policy documents but final outcomes may also differ significantly from a policy maker's original vision. Second, if policy makers remain critical in the borrowing process, adapting the

borrowed policy to their needs, the discourse will necessarily change along with its implementation. In reality thus, global educational discourses are not simply absorbed and imposed on local contexts regardless of the latters' unique needs and sensitivities.

Extending Well's (2005) second reason to the current discussion of 21CL in BC and Singapore, it must be taken into account that global discourses of 21CL had been filtered by policy makers, amongst whom are experienced educators[20], for the local context (as the similar yet different conceptions of 21CL in BC and Singapore would suggest). This brings two points to the fore. First, while it does not entirely invalidate the question of who is benefiting from 21CL and why, it does problematize the critique that educational agendas have been unreservedly hijacked to serve non-educational ends by completely ignoring the role that local educators had in shaping and constructing them. This also begs the question of whether completely rejecting the educational value of 21CL is in the best interest of students, especially since it does put forth relevant ideas such as technological literacy and information skills in an increasingly digital environment. Secondly, that BC and Singapore had constructed non-identical discourses around 21CL accentuates the saliency of developing context-specific solutions to address the tensions brought on by global trends to local education scenes. In this case, 21CL discourses needed to be interpreted through the context of each jurisdiction in a way that maximized its benefits to students while mitigating any neoliberal drawbacks, such as the commodification of education, choice, competition and increased accountability (Stromquist, 2002), that it may exert.

---

[20] The C2015 committee comprises mainly educators and was headed by the Director of Curriculum Planning and Development Division who was herself an educator and ex-principal. The PTC report consulted senior Ministry of Education staff including the Deputy Minister, Assistant Deputy Minister, Superintendents of Achievement as well as educators on the ground such as superintendents, a BCTF representative from its Curriculum and Education Policy branch, principals, a teacher from District 53 and academics from the education faculties in universities.

Conceptions of 21CL

In BC, the conception of 21CL can be broken down into two parts: personalized learning as well as 21st Century skills and competencies. Personalized learning, understood as appealing to the interests, talents and abilities of students to promote greater self-directed, independent learning that may occur outside school and involve community resources and expertise, is in line with the promotion of lifelong learning skills. At the same time, 21st century skills and competencies would be cultivated through constructivist teaching using problem and project-based, interdisciplinary learning. However, the notion of personalized learning and how "each learner would have a unique plan designed to help him or her succeed" (BCEd, 2011d, pp. 11) remains vague. Although, the BC Education plan had painstakingly laid out the various principles, features and support structures of personalized learning, there is a lack of examples on how this is envisioned to be carried out on a day to day basis in a classroom of students. In citing how personalized learning had already materialized in some districts of the province, the Personalized Learning in BC: Interactive Guide (BCEd, 2011d) cited the examples of differentiated instruction through the Network of Performance-Based Schools[21] and the Universal Design for Learning (UDL)[22]; choice schools such as sports or fine arts academies; choice programmes such as Mandarin and French Immersion, the Aboriginal Language Programme, Advanced Placement and Secondary School Apprenticeship; distributed learning; as well as districts which use non-traditional school calendars. Inferring from these examples, it would appear that personalized learning occurs not so much through teachers providing individualized plans for each student than through students selecting from among a great diversity of niche schools, unique

---

[21] The Network of Performance Based Schools is funded by the BC Ministry of Education. It is designed to improve quality and equity through inquiry, teamwork across roles, schools and districts, and a concentrated focus on applying coaching forms of assessment to assist learners to take greater ownership of their learning

[22] The BC UDL project was a Ministry of Education funded initiative to assist pilot school districts in implementing principles and building infrastructure for UDL. Pilot schools in the project received release time and training in UDL principles and technologies as well as technology and software to help implement UDL.

programmes and learning modes that best meet their individual needs. The aim therefore becomes how to proliferate this diversity of options to make it more commonly available to all students with the diverse options unified by a common focus to infuse the cultivation of 21st Century skills and competencies in them. Any further refinement of individualized learning within a given option would need to rely on technological supports that would enable teachers to track, design and craft learning targets and milestones for students. This is of course just a conjecture and it remains to be seen if 21CL as advanced by the BC Education Ministry plays out as such.

In Singapore, conceptions of 21CL have focused on outcomes pertaining to the self (confident person, self-directed learner) and the self in relation to others (active contributor, concerned citizen) through emphasizing shared values and soft skills such as socio-emotional competencies and the 21st century competencies (21CC). Singapore's 21CC framework may overly propound a utilitarian approach to education where it is mainly deployed in service to societal and economic needs to nurture students into citizens and workers respectively. As I had previously mentioned, the issue is not so much that using education as a means to prepare students for their future life is ill-founded; a balance is needed. The unease occurs when an overly future-oriented view of education hampers the ability to develop a broader perspective of education that extends beyond its function for *future* preparation. For instance, a perspective where learning could simultaneously be understood as an activity that is good and worthwhile in itself; where it does not only start with objectives and end with evaluation but can also spark wonder, curiosity and imagination in growing boys and girls even as they engage in the very *present* activity of trying to make sense of what it means to be human, to be alive and with doing so, continually create themselves (Pinar, 2011, Fenstermacher, 2000, Greene, 1978). Such a notion of education does not need to be, indeed resists being, tagged with some purpose that it must serve.

There are various signs that the prevalent view of education in Singapore may be tipped too heavily to the side of its instrumental function of preparation. This can be seen in how parents overly model to their children an attitude of education where it is mainly a means to "get ahead" through their widely known actions of shifting near to and volunteering in brand-name primary schools with the expectation of a pay-back that their children may gain priority in admission (ST Editorial, 2012). A further example is in the booming tuition industry in Singapore which goes to the extent of offering preparatory classes for the Ministry's gifted education screening test (Ng, 2012). Of course, such thinking and behaviour can only germinate and be sustained if it is nourished by the larger climate which propagates and reinforces the same instrumental view of education as the only logic with which to consider education. Incidentally, the current instance of the 21st Century Competencies framework may serve as an example to illustrate this, as I try to show why in the ensuing paragraph.

The language used in the 21CC framework's description is bereft of any reference to any other notions of education apart from its functional role of preparation. Even values are couched from angles that emphasize their instrumental worth in manoeuvring and negotiating the world of the 21st Century, rather than as intrinsically good and of worth in themselves. For instance, the framework stated that "values define a person's character" and that "they shape the beliefs, attitudes and actions of a person, and *therefore* form the core of the framework of 21st century competencies". It then goes on to list not just any values, but those that were touted as "values *at the core of the 21st Century Competencies*". In other words, values were rationalized as important only in relation to the competencies needed in the 21st Century. While I do not think the intention was to portray values as only such or to dispute that good values could be worthy in themselves, the overriding and overarching signal projected is unmistakably utilitarian and about education as preparation.

Because conceptions of good education are necessarily the cultural products of society (Coulter & Wiens, 2008), the problem of effecting change in what constitutes good education is a cultural one. A cultural problem requires a cultural antidote. This will take time, even generations, because it involves changes in deep seated mindsets. It could start with the opening up of new languages with which to think and act in education. In other words, a re-examination of the language used to construct educational discourses. Echoing Foucault, Biesta (2006) cautions educators that language matters to education because the limit of our language is the limit of our thoughts, actions and reality. Introducing a new language to education can allow it to serve as a comparison to the old, and allow for the limitations and inadequacy of the latter to be crystallized and exposed. Going forward thus, the use of policy language that reframes and that reifies the intrinsic value of education as good and worthwhile in itself may need to be injected into Singaporeans' current conversations to begin to balance it with the somewhat handcuffing mindsets of education as purely for preparation and "getting ahead".

Implementation Issues

This section discusses two tensions inherent in the implementation of 21CL. The first relates to resource. In the case of BC, as BCTF had also pointed out, there is the resource question of how personalized learning could materialize. Part of the reason for this concern is the vagueness with which the whole notion of personalized learning had been advanced, which leads to anxiety over how teachers are in fact able to deliver personalized plans for each student (as was discussed in the previous section). The lack of a discussion of the minimum teaching and learning conditions such as class size and class composition with which the constructivist, project and problem-based, interdisciplinary teaching and learning of 21CL could take place poses a practical implementation problem, which in turn threatens

the policy option of quality teaching and learning. Further dimensions of the resource concern arises over the provision of the attendant technological infrastructure needed for personalized learning as well as the promotion of 'flexibility and choice' as a supporting policy. In the latter, it had been found that the BC government had neglected to provide a thorough investigation of choice initiatives and how they play out across the province. With a lack of resource support, choice does not provide for equal access and results in a two-tiered school system in many constituencies (Waithman, 2009).

In the case of Singapore, while physical resources are provided to support the implementation of 21CL, the resource constraint is of time and space for teachers to pursue quality teaching and learning of 21CL. For BC, the move to embrace 21CL is promised to be accompanied by a reduction of the prescribed learning outcomes required by the provincial curriculum, especially as students approach the higher grade levels. In Singapore, 21CL requirements are layered over the existing curriculum without any reduction in syllabus. Although teachers will be supported with professional development and with exemplars that are being developed which they can adapt for their lessons, the reality is also that lessons which seek to infuse the promotion of soft skills such as those listed in the 21st century competencies do require quality class interaction that in turn requires longer instructional time to play out. Also, as the Minister himself had remarked, the successful teaching of 21st Century skills and competencies ultimately depends on the convictions and wisdom of educators (Heng, 2011). This is especially prominent with the consideration that implementation strategies to support the initiative include plans to develop evaluation frameworks for teachers and schools to assess their success in the teaching and learning of 21CL. Such accountability mechanisms open up the potential for goal displacement and gaming, what Strike (2007, as cited in Johnson, 2012) calls the vices of accountability. Goal displacement involves the narrowing of the range of aspirations and the reduction of the meaning and

depth of an educational issue to that which is measured. With gaming, educators may find ways to meet the accountability measure but may not be educating their students better (Strike 2007, as cited in Johnson, 2012). Thus, if educators are careless or undiscerning, they may distort the educational intent of 21CL.

The second tension, which is faced by both BC and Singapore, is the use of standardized assessments across the province and the nation respectively. In BC, this is included as the policy option of "high standards" while in Singapore, its importance is reinforced through repeated calls to maintain academic excellence even as the soft skills and values of 21CL are pursued. The use of standardized assessments can be argued to interfere with the 21CL goals of personalized learning in BC and the cultivation of 'critical and inventive' thinking in Singapore. Notwithstanding the BC Education Plan's concurrent push for formative assessment, the continued need to prepare students for narrowly defined measurements of learning in provincial standardized assessments is seen as a barrier to teacher autonomy in educating according to each child's needs, the latter as implied by "personalized learning". In Singapore, despite almost 15 years of reform since the Thinking Schools Learning Nation of 1997 and the Teach Less Learn More movement of 2005, only incremental progress had been gained in making teaching more constructivist and less didactic (Hogan & Colleagues, 2009, as cited in Dimmock & Goh, 2011). This continues to erect barriers in fostering stronger critical thinking skills, creativity and innovation, outcomes that may demand less structured learning and a more process-oriented than product-oriented style of teaching. Dimmock and Goh (2011) had attributed the modest changes attained in teaching styles to a range of factors which included national high stakes assessments and how it continued to shape teacher behaviour in the classroom. Studies of education systems had found that the fidelity of implementation by frontline classroom teachers is a critical factor in the success of policies in meeting their goals (Chijioke, Barber, & Mourshed, 2010). In so far

106

as standardized assessment remains a sacred cow seen as capable of delivering high educational outcomes, it will continue to figure as a hurdle to negotiate in the achievement of other worthy educational goals. In this respect, the example of Finland, noted internationally as a top system for its PISA performance, may be a useful example to analyse because it is able to achieve the outcomes without the need for jurisdiction-wide standardized assessment.

Sclafani (2008) offers insights into education in Finland. About 580000 students in Finland are spread over 4000 schools in 450 municipalities. Finnish teachers, who must own a Master degree, create their own assessments to get feedback on student learning. They improve on the quality of their teaching using this feedback while students regularly use feedback from teachers to develop a better understanding of their own knowledge and improve. School improvement occurs through self-evaluation that principals and teachers lead, which takes into account parental feedback and student self-assessment. The National Board of Education randomly evaluates different subjects in each school once every 3 years to provide data on school quality and determine improvement needs for national curricula. Schools in turn use these data in their evaluations that lead to positive changes in the classroom.

In the example of Finland, the success factors are the strong trust, cooperation and commitment among all stakeholders of education as well as the highly capable graduate teaching force that is able to engender excellence in the absence of the overt normalizing structure of national assessments. The high capacity of the teaching force is noted to be especially important because in a system without the external information provided by national examinations and ranking, the professional expertise of teachers becomes paramount for engendering continual quality school improvement at the local level through effective self-evaluation. Schools must also determine how to maintain public accountability to stakeholders using indicators that are reasonable and acceptable to the latter. While Finland's

success may be argued to be possible because of the high social status and qualifications of teachers, the ethnically homogenous student population and the strong support from the government towards education, it does show that investment in teacher capacity can make it possible for local excellence achieved through local evaluation to match that required for national and international benchmarks, as Finland's PISA performance had shown. This addresses one of the rationales for standardized assessments, which is a need to ascertain the state of student learning at a system level more objectively through a common instrument and for policy makers in BC and Singapore, the apprehension that "standards" will slip and become uneven across the jurisdiction in the absence of one. While BC and Singapore may not be ready for an immediate re-gear to Finland's method, it does provide a roadmap for future initiatives to work towards in the long run.

Governance and Organizational Form

The difference in governance and organizational structure of education in BC and Singapore is anchored in the difference in power distribution among stakeholders. This is clearly manifested in the varied and impassioned stakeholder responses to the BCEd's proposed 21CL policies and the near universal acceptance of the same policy by all stakeholders in Singapore. The pros and cons of each model of governance and organizational structure may thus be analysed using the concept of power.

Relative to each other, BC adopts a more power-with approach to educational governance while Singapore subscribes to a more power-over approach (Brunner, 2002). Policies require that all stakeholders work in concert in order to be successful. In this respect, the power dynamics between the Ministry and other stakeholders plays a critical role. In Singapore, while the Ministry does take the feedback of stakeholders seriously through the inclusion of representatives from different stakeholder groups in the policy formulation

process, the formal power structure is such that schools report to MOE and are the operational arms of MOE's policies (Ng, 2010). This power structure is solidified by the fact that educators in the system are civil servants, unlike in BC. Thus, all stakeholders are expected to take reference from the Ministry once policies are rolled out. While this does allow for more coherent implementation of policies, it may suffer from a lack of diverse perspectives that could enrich and inform policy making through a more pervasive and more public consultation process. With an increasingly sophisticated public and hence education stakeholder groups, the expectation for government transparency and accountability has risen. Stakeholders do want to have a say in steering policies that affect them (Sim, 2011) and are increasingly vocal when there is a perception that their feedback had fallen on deaf ears (Tan, 2012). In essence, this points to the need for policy makers to grow more comfortable with a more power-sharing model of policy formulation. Thus, in education as in other fields, the Singaporean Ministry needs to further grow its capacity to move in the direction of greater public engagement that extends beyond explanation and generation of buy-in of already decided policies to one which figures more co-creation of policies with stakeholders over a greater range of issues. In this respect, BC offers pointers that Singapore can learn from – as the expansive public consultation of its 21CL policy in the form of the BC Education Plan, which even included students, demonstrates[23].

An important caveat in a power-with model to policy making is the mutual understanding amongst all stakeholders of the need for trust and a shared goal that students' best interests must be served regardless of differences in opinion. In other words, there must be a realistic expectation on all sides that compromises may need to be struck by all parties at some point as it is impossible for views to converge and all interests to be met in a pluralistic society. A power-with model must not denigrate into a struggle for a power-over model

---

[23] Singapore's C2015 committee consulted educators, parents and employers (Ng, 2008).

amongst stakeholders where each is unable to look beyond the wall of their own legitimate positions to the ultimate detriment of students. In the final analysis, a power-with model may be just as abusive as a power-over model could be (and vice versa) without a measured and ethical use of power within either.

CONCLUSION

As a conclusion to this study, this section distils two key insights on educational policy formulation derived from an overall consideration of the present comparative study of the emergence and conceptions of 21CL policies in BC and Singapore. These insights are explored as implications from the lens of the policy maker. The first pertains to the nature of education as a policy field. The second pertains to some tentative thoughts on the role of politics in education policy making.

As a policy field, education is a contested domain where a large number of opinions exist from many on how best to educate children and why. This is amply demonstrated in the preceding discussion on the emergence and conceptions of 21CL in both jurisdictions. To the extent that views on education are multifaceted (depending on vantage point) and evolving (depending on the changing times), diverse views that enrich perspectives may also cloud clarity. Through the analysis of reform themes and goals as well as the salience of 21CL, it is apparent that arguments for and against notions of 21CL from stakeholders are really contentions in the purposes of education. While these contentions are arguably found mainly in the context of BC and less in Singapore, it does hold lessons for the latter, particularly as educational governance in Singapore engages with an increasingly sophisticated and vocal public possessed by an expanding worldview. With respect to this messy reality in the field of educational policy, the central question for policy-makers ensnared by a delivery timeline is how to crystallize from the potpourri of competing views workable principles for policy

action. As Fischer (2007, as cited in Howlett, Ramesh & Perl, 2009) tells us, and as is also evident in the present case of 21CL, in policy debates "each party would confront the others with counter-proposals based on varying perceptions of the facts. The participants would organize the established data and fit them into the world views that underline their own arguments. The criteria for rejecting or accepting a proposal would be the same grounds as those for accepting or rejecting a counterproposal" (pp. 28). There are no easy solutions to decide between competing discourses and I do not presume to prescribe any. Arising from this study however, I have become more convinced than ever about three points. The first is that it is important to constantly adopt a posture of humility in policy making. This stems from the realization that any one point of view about education is necessarily limited and biased, that no single individual or group monopolize the wisdom of what it means to educate, as I have learnt especially through analyzing 21CL in BC. Secondly, this realization underscores the importance of constantly looking outward to expand one's understanding and to learn from the wisdom and experiences of other stakeholders, both local and global. There is a need to develop an empathetic understanding of the myriad of perspectives that exist on the issue of education, even across jurisdictional contexts. This learning should extend beyond understanding what is working well and why to also comprehending the criticisms hurled on the system by detractors amongst its stakeholders. This will allow policy makers to interrogate and challenge what is taken to be common sense and taken for granted in one's own jurisdiction and stimulate innovation and thinking in policy formulation. For instance, I have acquired a more nuanced understanding of the limits of utilitarianism in policy making and the limits of an "equality of opportunity" approach to using education as a social-leveller. Thirdly, in weighing the feasibility of alternatives gleaned from an expanded understanding, educational decisions and policies affecting children must be filtered through rigorous considerations that are responsive to each jurisdictional context. Despite increasingly similar

challenges, such as global neoliberalism, faced by educational systems, what is acceptable and feasible as a response in one jurisdiction may not be so in another. Above all, policy formulation requires a sense of realism of what would and would not work based on a solid understanding of the historical, cultural, educational, political and socio-economic contexts of each jurisdiction. Policy considerations are really value considerations and it is values that determine the goals of education. Hence, the policies adapted and adopted within each jurisdiction must be evaluated against the varied and often competing goals of education in each to ascertain how best to shift the balance to maximize value-based outcomes for students. At the end of the day, it is the presence of tension among worthy goals that provides the inspiration to continually pursue them in new and improved ways.

The second overall insight gleaned from this study derives logically from the first and relates to the role of politics in education. Because education is a contested domain, politics will always be a part of education policy formulation. It is deceptively appealing to think that education should be apolitical (if not anti-political) if it is to remain truly educational, dealing only with the pedagogical. This would be an over-simplification. Politics has its place because it prevents the uninterrupted march of monolithic versions of education from going unquestioned. It is thus essential that different stakeholders with different views on how best to educate children at least wield some power to influence the direction of educational policies. Yet, as 21CL in BC has also exemplified, politics is fundamentally a struggle over who gets what, when and how and it will never cease to be an enterprise that produces winners and losers (Teo, 2011, Levin, 2005). In the bigger scheme of things, it is important to never forget that educational policies are ultimately about our children, who may be the biggest losers when education is interfered by too much politics. Moreover, the reality of government is that not everything can be done through full consultation and lobby groups will not always get what they want (Levin, 2005). How then can the tone and substance of

politics in education be constructively managed? Taking the policy makers' perspective, I suggest the challenge is in how to engender pragmatic consultation. This would be consultation that is inclusive yet productively efficient, so that policy making does not descend into a protracted debate that leads nowhere. This is of course easier said than done, albeit an ideal worthy of our aspiration. Depending on where it is situated, each given jurisdiction needs to decide how best to shift the politics in its education system to enable pragmatic consultation of educational policies. Without this balance, educational policies risk being hijacked and held ransom by excessive politics with students as the inevitable victims. Hannah Arendt (1954) once said that the role education played for every civilization was the obligation that the existence of children entailed for every human society. Ultimately, all stakeholders will need to decide if we care about our children enough to want to protect education from the contamination of excessive politics.

SUGGESTIONS FOR FURTHER RESEARCH

Moving forward from the preceding discussion and conclusion, interviews with relevant stakeholders may be pursued as further research in future studies pertaining to the 21CL policies in BC and Singapore. Such further work will serve as a comparison and critique of the findings and ideas presented in the discussion and conclusion of the present study. A more purist application of available rational analysis and critical discourse analysis theories may also be pursued to more rigorously dissect, interpret and unearth the embedded assumptions, logic and orientation of policy discourses used by both jurisdictions in the formulation of 21CL policies. Lastly, further work may examine how pragmatic consultation may be effectively practised so that politics may serve education without handicapping it.

REFERENCES

21st Century Learning Initiative. (2010). *"Schools" in the future: What has to change and why*. Retrieved from http://www.21learn.org/site/wp-content/uploads/Schools-in-the-Future-April-2010.pdf

Abbott, G. (2011). *Opinion Editorial. B.C.'s plan for educational transformation.* Retrieved from http://www.newsroom.gov.bc.ca/ministries/education/factsheets/bcs-plan-for-education-transformation.html

Ananiadou, K. and M. Claro (2009), "21st Century Skills and Competences for New Millennium Learners in OECD Countries", *OECD Education Working Papers*, No. 41, OECD Publishing. http://dx.doi.org/10.1787/218525261154

Arendt, H. (1954). *The Crisis in Education.* Retrieved from http://chomikuj.pl/Agresst/Filozofia/Biblioteka/Czarne+konie+filozofii/Arendt/Hannah+Arendt+-+Crisis+in+education,128382327.pdf

Aspin, D. N., & Chapman, J. D. (2000). Lifelong Learning: Concepts and Conceptions. *International Journal of Lifelong Education*, 19(1), 2-19.

Ball, S. J. (2005). What is policy? Texts, trajectories and toolboxes. *In Education policy and social class: The selected words of Stephen J. Ball* (pp. 43-53). Taylor & Francis. Retrieved 2 November 2011, from http://lib.myilibrary.com.ezproxy.library.ubc.ca?ID=24444

Biesta, G. J. J. (2006). Reclaiming a language for education in an age of learning. *Beyond learning: Democratic education for a human future* (pp. 13-32). London: Paradigm.

British Columbia Confederation of Parent Advisory Councils. (2010). *Letter to Minister of Public Safety and Solicitor General. 31st March, 2010*. Retrieved from http://www.bccpac.bc.ca/UserFiles/File/Responses%20to%20Resolutions/LetterM

arch31_2011_SBond_Funding.pdf

British Columbia Confederation of Parent Advisory Councils. (2011). *Letter to BCSTA. 25th*

August 2011. Retrieved from

http://www.bcsta.org:8080/docushare/dsweb/Get/Document-67653/2011-08-

25_AWhiteaker_BCCPAC_AGM_Resoln_13.pdf

British Columbia Ministry of Education. (2010a). *Learning Roundtable Report - June 4,*

2010. Retrieved from

http://www.bced.gov.bc.ca/roundtable/docs/100604minutes.pdf

British Columbia Ministry of Education. (2010b). *BC School Superintendents' Association*

[PowerPoint slides]. Retrieved from

http://www.bcssa.org/powerpoints/SLA2010/MoE-SLA2010.htm

British Columbia Ministry of Education. (2011a). *2010/2011 summary of key information.*

Retrieved from http://www.bced.gov.bc.ca/reporting/docs/SoK_2011.pdf

British Columbia Ministry of Education. (2011b). *To: Superintendents, Secretary*

Treasurers, Board Chairs and BCPSEA Trustee Representatives. Retrieved from

http://postmediavancouversun.files.wordpress.com/2011/05/bargaining-pl-meet.pdf

British Columbia Ministry of Education. (2011c). *Revised 2011/2012-2013/2014 service*

plan. Retrieved from

http://www.bcbudget.gov.bc.ca/2011/sp/pdf/ministry/educ.pdf

British Columbia Ministry of Education. (2011d) *Personalized Learning in BC: Interactive*

Discussion Guide. Retrieved from http://www.personalizedlearningbc.ca/#/1

British Columbia Ministry of Education. (2011e). *BC's Education Plan*. Retrieved from

http://www.bcedplan.ca/assets/pdf/bc_edu_plan.pdf

British Columbia Ministry of Education. (2011f). *Neighbourhood Learning Centres*.

Retrieved from http://www.neighbourhoodlearningcentres.gov.bc.ca/

British Columbia Ministry of Education. (2011g). A Provincial Conversation with Michael

      Fullan, Valerie Hannon and Tony Mackay [Video File]. Retrieved from

      http://engage.insinc.com/moe/20110907/player.php

British Columbia Ministry of Education. (2011h). *2011 BCSTA Academy*. Retrieved from

      http://www.bcsta.org:8080/docushare/dsweb/Get/Document-68981/2011-12-

      15_BCSTA_final_for%20posting.pdf

British Columbia Ministry of Education. (2012a). *Education Minister George Abbott Twitter*

      Chat - January 19, 2012. Retrieved from http://engage.bcedplan.ca/wp-

      content/uploads/2012/02/120119-twitter-chat-minister-abbott.pdf

British Columbia Ministry of Education. (2012b). Reform and Renewal of the BC Education

      System [Video File]. Retrieved from

      http://www.youtube.com/watch?v=n77h0PxsHUA&rel=0

British Columbia Ministry of Education. (2012c). *News release: More choice, flexibility for*

      B.C.'s education system. Retrieved from

      http://www2.news.gov.bc.ca/news_releases_2009-2013/2012EDUC0044-

      000548.htm

British Columbia Principals' and Vice Principals' Association. (2009). Learning in the 21st

      Century. *Admininfo*. Retrieved from

      www.bcpvpa.bc.ca/downloads/adminfo_pdf/Adminfo0609web.pdf

British Columbia Principals' and Vice Principals' Association. (2010). Learning in the 21st

      Century. *BC Student Voice*. Retrieved from

      http://www.bcpvpa.bc.ca/downloads/pdf/SV0510.pdf

British Columbia Principals' and Vice Principals' Association. (2011a). *What's up with the*

      FSA? Retrieved from

      http://www.vancouversun.com/pdf/BCPVPAFSAJan2011.pdf

British Columbia Principals' and Vice Principals' Association. (2011b). *Connecting*

    Leaders: Learning for Changing Times. Retrieved from

    http://www.bcpvpa.bc.ca/downloads/pdf/CL2011April11.pdf

British Columbia Principals' and Vice Principals' Association. (2011c). Already on our way.

    Admininfo. Retrieved from

    www.bcpvpa.bc.ca/downloads/adminfo_pdf/Oct11Koehnweb.pdf

British Columbia Principals' and Vice Principals' Association. (2012). *Connecting Leaders:*

    Learning for Changing Times. Retrieved from

    http://www.bcpvpa.bc.ca/downloads/pdf/CL2012Ver0312.pdf

British Columbia Public School Employers' Association. (2010). *20th Century Classroom vs.*

    the 21st Century Classroom. Retrieved from

    http://www.bcsta.org:8080/docushare/dsweb/Get/Document-

    64403/BCPSEA_20vs21.PDF

British Columbia Public School Employers' Association. (2011a). *Perspectives in Practice:*

    Employment in Transformational Times or Change as Usual. Retrieved from

    http://www.bcpsea.bc.ca/documents/Publications-ResourceDiscussionDocs/02-

    HJF-Employment%20in%20Transformational%20Times.pdf

British Columbia Public School Employers' Association. (2011b). *Teacher Compensation*

    2011: Context & Consideration. Retrieved from

    http://www.bcpsea.bc.ca/documents/publications/00-LB-

    FINAL%20Teacher%20Compensation%202011%20Discussion%20Paper%20Apri

    l%202011.pdf

British Columbia School Superintendents' Association. (2007). *21st Century Learning*

    Initiative (Canada) in British Columbia. Retrieved from www.bcssa.org/pro-

    d/conf-present/FC07/fc07ccl-impactinBC.pdf

British Columbia School Superintendents' Association. (2010). *BC School Superintendents*

    Optimistic Following Premier's Address. Retrieved from

    http://www.bcssa.org/PDFs/BCSSA-PremiersAddress-NewsRelease.pdf

British Columbia School Trustees Association. (2010a). BCSTA meets with Education

    Minister to discuss co-governance. *Advocacy News*. Retrieved from

    http://www.bcsta.org:8080/docushare/dsweb/Get/Document-62446/2010-06-

    25_Advocacy_News.html

British Columbia School Trustees Association. (2010b). *Summary Report: Meeting of Board*

    Chairs, Branch Presidents, Provincial Councillors and Ministry of Education.

    Retrieved from http://postmediavancouversun.files.wordpress.com/2010/11/2010-

    10-22_ministry_meeting_summary.pdf

British Columbia School Trustees Association. (2010c). *Success for all. BCSTA Trustee*

    Academy. December 9-10, 2010 – Vancouver. Retrieved from

    http://www.bcsta.org:8080/docushare/dsweb/Get/Document-

    63746/2010_Academy_Program.pdf

British Columbia School Trustees Association. (2011a). *Making the future bright. AGM*

    2011 BCSTA report of proceedings. Retrieved from

    http://www.bcsta.org:8080/docushare/dsweb/Get/Document-

    66326/Report_of_Proceedings_2011.pdf

British Columbia School Trustees Association. (2011b). *Tracking of February 2011*

    Provincial Council Resolutions. Accessed February, 4, 2012 at

    http://dsweb.bcsta.org/docushare/dsweb/Services/Document-

    67795http://www.bcsta.org:8080/docushare/dsweb/Get/Document-65844/2011-

    02_PC_Resoln.pdf

British Columbia School Trustees Association. (2012). *BCSTA 2012 AGM Motions*.

Retrieved from http://www.bcsta.org:8080/docushare/dsweb/Get/Document-69673/2012_Program_Condensed-FINAL.pdf

British Columbia Teachers' Federation. (2010). *BCTF Blogs. 21st Century Learning, Part 1: B.C., John Abbott, and the 21st Century Learning Initiative*. Retrieved from http://bctf.ca/blogs/research.aspx?id=21564&blogid=7524

British Columbia Teachers' Federation. (n.d.). *Teaching and learning in the 21st century: Teachers lead the way*. Retrieved from http://www.bctf.ca/IssuesInEducation.aspx?id=23050%20

Brunner, C.C. (2002). Professing educational Leadership: Conceptions of power. *Journal of School Leadership*, 12 (6), 693-720.

Burnaby Teachers' Association. (2011). *BCTF AGM Resolutions from the Burnaby Teachers' Association*. Retrieved from http://www.burnabyteachers.com/documents/Dec12FinalcopyofBCTFAGMResolutionslettersizedforBCTF.pdf

Campagnolo, I. (2006). *Speech from the Throne.* Retrieved from Legislative Assembly of British Columbia website http://www.leg.bc.ca/38th2nd/Throne_Speech_2006.pdf

Canadian Council of Education Ministers. (2008). *Learn Canada 2020.* Retrieved from www.cmec.ca/Publications/Lists/.../cmec-2020-declaration.en.pdf

Canadian Schools Board Association. (2011). *CSBA Presents 21st Century Learning Initiatives to Council of Ministers of Education, Canada*. Retrieved from http://cdnsba.org/all/announcements/csba-presents-21st-century-learning-initiatives-to-council-of-ministers-of-education-canada

Cappon, P. (2005). *Announcing a partnership between the 21st Century Learning Initiative (Canada) and the Canadian Council on Learning*. Retrieved from Canadian Council on Learning website http://www.ccl-

cca.ca/CCL/Newsroom/Speeches/20060913-21stCenturySpeech.html

Cardwell, S. (2009). *Student Engagement in an Age of Distraction*. Retrieved from

http://web.me.com/phronesis2007/Engagement/Student_Engagement.html

Chijioke, C., Barber, M., & Mourshed, M. (2010). *How the world's most improved school*

systems keep getting better. Retrieved from McKinsey&Company website:

http://ssomckinsey.darbyfilms.com/reports/schools/How-the-Worlds-Most-

Improved-School-Systems-Keep-Getting-Better_Download-version_Final.pdf

Coulter, D. & Wiens, J. R. (2008) Prologue: Renewing the conversation. In D. Coulter & J.

R. Wiens (Eds.). *Why do we educate? Renewing the conversation: The 107th*

Yearbook of the National Society for the Study of Education (pp. 5-18). Boston:

Wiley-Blackwell.

Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating*

quantitative and qualitative research (4th ed.) Boston: Pearson Education.

Dimmock, C., & Goh, J. P. (2011). Transformative pedagogy, leadership and school

organization for the twenty-first-century knowledge-based economy: the case of

Singapore. *School Leadership & Management*, *31*(3), 215-234.

doi:10.1080/13632434.2010.546106

Dryzek, J. S. (2002). A post-positivist policy-analytic travelogue. *The Good Society*, 11(1),

32-36. Retrieved from

http://muse.jhu.edu/journals/good_society/v011/11.1dryzek.pdf

Fenstermacher, G. D. (2000). *What is the difference between the North Star and Northfield?*

How educational goals and ideals become confused. Retrieved from http://www-

personal.umich.edu/~gfenster/northstar6ss.PDF

Fu, G. (2010). *Speech by Ms. Grace Fu, Senior Minister of State, Ministry of National*

Development and Ministry of Education, at the Caring Teacher Awards 2010 on

Thursday, 8 April 2010, at the NTU Alumni Club. Retrieved from Singapore

Ministry of Education website

http://www.moe.gov.sg/media/speeches/2010/04/08/speech-by-ms-grace-fu-at-the-

caring-teacher-awards-2010.php

Furman, Gail C. (2004). The ethic of community. *Journal of Educational Administration,*

42(2), 215-235. DOI (Permanent URL): 10.1108/09578230410525612

Goh, C. T. (1997). *Speech by Prime Minister Goh Chok Tong at the opening of the 7th*

International Conference On Thinking on Monday, 2 June 1997, at 9.00 Am at The

Suntec City Convention Centre Ballroom. Retrieved from Singapore Ministry of

Education website http://www.moe.gov.sg/media/speeches/1997/020697.htm

Goh, C. T. (1998). *Speech by Prime Minister Goh Chok Tong, at the celebrations of the*

Golden Jubilee of Singapore Buddhist Federation and Maha Bodhi School cum the

official opening of Maha Bodhi School New Building, on Saturday, 17 January

1998, at 5.00 pm at Maha Bodhi School Hall, 10 Ubi Avenue 1. Retrieved from

Singapore Ministry of Education website

http://www.moe.gov.sg/media/speeches/1998/171098.htm

Gorman, J. (2010). *Report on Education from the Deputy Minister of Education.* Retrieved

from *www.bcssa.org/PDFs/Resources/DMReport-May-7-2010.pdf*

Gorman, J. (2011). *BC School Superintendents' Summer Leadership Academy* [PowerPoint

slides]. Retrieved from

http://www.bcssa.org/powerpoints/SLA2011/DMpresentation-sla2011.pptx

Greene, M. (1978). Chapter 5: *The Agon of "Basics": Backward Looks and Future*

Possibilities. *Landscapes of learning* (pp. 74-85). New York: Teachers College

Press.

Haddad, W. & Demsky, T. (1995) *Education policy-planning process: an applied*

121

framework. Retrieved from United Nations Educational, Scientific and Cultural

Organization International Institute for Educational Planning website:

http://unesdoc.unesco.org/ulis/cgi-

bin/ulis.pl?M040=xie&req=2&look=iiep&sc1=1&sc2=1&lin=1&futf8=1&gp=1&t

x=&tx_p=near&ti=&ti_p=inc&au=haddad&ds=&ds_tie=and&ds_2=&dafr=&dato

=&se=&submit=%C2%A0%C2%A0Go%C2%A0

Hankivsky, O., & Cormier, R. (2011). Intersectionality and public policy: Some lessons

from existing models. *Political Research Quarterly*, *64*(1), 217-229.

doi:10.1177/1065912910376385

Hannon, V. & Mackay, T. (2010a). *Developing the BC learning agenda: innovation and*

improvement Part 1: Overview [PowerPoint slides]. Retrieved from

http://www.bcssa.org/powerpoints/Fall2010/BC_NOV2010_SET1-9AM.pptx

Hannon, V. & Mackay, T. (2010b). *Developing the BC learning agenda: innovation and*

improvement Part 2: Emergent Policies [PowerPoint slides]. Retrieved from

http://www.bcssa.org/powerpoints/Fall2010/BC_NOV2010_SET2-1030AM.pptx

Hannon, V. & Mackay, T. (2010c). *Developing the BC learning agenda: innovation and*

improvement Part 3: Practice [PowerPoint slides]. Retrieved from

http://www.bcssa.org/powerpoints/Fall2010/BC_NOV2010_SET3-130PM.pptx

Hannon, V. & Mackay, T. (2010d). *21st Century Learning Diagnostic* [PowerPoint slides].

Retrieved from

http://www.bcssa.org/powerpoints/Fall2010/21stC_learning_diagnostic.ppt

Hannon, V. & Mackay, T. (2010e). *21st Century Learning Diagnostic survey results*.

Retrieved from http://www.bcssa.org/PDFs/DiagnosticResultsSummary.pdf

Heng, S. K. (2011). *Opening Address by Mr Heng Swee Keat, Minister for Education, at the*

Ministry of Education (MOE) Work Plan Seminar, on Thursday, 22 September

2011 at 10.00 am at Ngee Ann Polytechnic Convention Centre. Retrieved from

Ministry of Education, Singapore website:

http://www.moe.gov.sg/media/speeches/2011/09/22/work-plan-seminar-2011.php

Heng, S. K. (2012). *Speech By Mr Heng Swee Keat, Minister for Education, at the Opening*

Ceremony of the National School Games (NSG) on Tuesday, 17 January 2012 at

3.00pm at St. Hilda's Primary School and St. Hilda's Secondary School. Retrieved

from http://www.moe.gov.sg/media/speeches/2012/01/17/speech-by-mr-heng-

swee-keat-at-nsg-opening.php

Hopkins, J. (2011). Personalized Learning. *Our Voice.* Retrieved from British Columbia

Confederation of Parent Advisory Councils website

http://www.bccpac.bc.ca/UserFiles/File/Our%20Voice/2011/OurVoice_Fall_2011.

pdf

Howlett, M. Ramesh, M. Perl, A. (2009). *Studying public policy: Policy cycle and policy*

subsystems. (3rd ed.). Don Mills, ON: Oxford University Press.

Iris G. M. & Laurence E. L. J. (1998). Comparative policy analysis: Introduction to a new

journal. *Journal of Comparative Policy Analysis: Research and Practice*, 1(1), 5-8

Retrieved from http://www.tandfonline.com/doi/pdf/10.1080/13876989808412612

Johnson, L. C. (2012). *The vices of accountability and deficient leadership* [Class handout].

Department of Educational Studies, University of British Columbia, Vancouver,

Canada.

Knighton, T., Brochu, P., Gluszynski T. (2010). *Measuring Up: Canadian Results of the*

OECD PISA Study. The Performance of Canada's Youth in Reading, Mathematics

and Science 2009 First Results for Canadians Aged 15. Retrieved from Statistics

Canada website:

http://www.statcan.gc.ca/access_acces/alternative_alternatif.action?l=eng&loc=/pu

b/81-590-x/81-590-x2010001-eng.pdf

Kuehn, L. (2011). BC's Education Plan: Experiments with kids' learning. *Teacher*.

Retrieved from http://www.bctf.ca/publications/NewsmagArticle.aspx?id=24450

Larson, J. (2011). 21st century learning for survival, not keyboarding skills. *Teacher*.

Retrieved from British Columbia Teachers' Federation website

http://bctf.ca/publications/NewsmagArticle.aspx?id=22368

Legislative Assembly of British Columbia. (2010a). *2010 Legislative Session: Second*

Session, 39th Parliament. Minutes of Select Standing Committee on Finance and

Government Services. Wednesday, September 15, 2010 1:30 p.m. Retrieved from

http://www.leg.bc.ca/cmt/39thparl/session-2/fgs/hansard/N00915p.htm#20:2025

Legislative Assembly of British Columbia. (2010b). *2010 Legislative Session: Second*

Session, 39th Parliament. Minutes of Select Standing Committee on Finance and

Government Services. Wednesday, September 22, 2010, 9 a.m. Retrieved from

http://www.leg.bc.ca/cmt/39thparl/session-2/fgs/hansard/N00922a.htm#23:1005

Legislative Assembly of British Columbia. (2010c). *2010 Legislative Session: Second*

Session, 39th Parliament. Minutes of Select Standing Committee on Finance and

Government Services. Tuesday, October 5, 2010, 9 a.m. Retrieved from

http://www.leg.bc.ca/cmt/39thparl/session-2/fgs/hansard/N01005a.htm#30:1250

Levin, B. (2001). Education reform from an international perspective. *Education Policy*

Analysis Archives, 9, 14. Retrieved from

http://epaa.asu.edu/ojs/article/view/343/469

Levin, B. (2005). *Governing education.* Toronto: University of Toronto Press, c2005.

Lombardi, M. (2010). *BCSTA provides advice to Education Minister on 21st Century*

Learning. Retrieved from

http://www.facebook.com/note.php?note_id=171711419509671

McCulloch, G. (2004). *Documentary research in Education, History and the Social Sciences.* London; New York: RoutledgeFalmer.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853-886. doi:10.5465/AMR.1997.9711022105

Nash, R. (1990). Bourdieu on Education and Social and Cultural Reproduction. *British Journal of Sociology of Education*, 11(4), 431-447. Retrieved from EBSCO*host*.

Naylor, C. (2011a). *21st Century Learning: Widening the frame of focus and debate: A BCTF Discussion and Debate Paper.* Retrieved from http://bctf.ca/uploadedFiles/Public/Issues/21CL/21CL-DiscussionPaper.pdf

Naylor, C. (2011b). *BCPSEA: Fostering division and polarization or promoting a conversation?* Retrieved from British Columbia Teachers' Federation website http://bctf.ca/publications/BCTF-research.aspx?id=23335

Ng, E. H. (2008). *Speech by Dr Ng Eng Hen, Minister for Education and Second Minister for Defence, at the MOE Work Plan Seminar 2008, on Thursday, 25 September 2008 at 9.30am at the Ngee Ann Polytechnic Convention Centre*. Retrieved from Singapore Ministry of Education website: http://www.moe.gov.sg/media/speeches/2008/09/25/speech-by-dr-ng-eng-hen-at-the-moe-work-plan-seminar-2008.php

Ng, E. H. (2010a). *FY 2010 Committee of Supply Debate: 1st Reply by Dr Ng Eng Hen, Minister for Education and Second Minister for Defence on Strengthening Education for All*. Retrieved from Singapore Ministry of Education website http://www.moe.gov.sg/media/speeches/2010/03/09/fy-2010-committee-of-supply-de.php

Ng, E. H. (2010b). *Speech by Dr Ng Eng Hen, Minister for Education and Second Minister for Defence, at the MOE Work Plan Seminar 2010, on Thursday, 23 September 2010 at 9.30am at the Ngee Ann Polytechnic Convention Centre*. Retrieved from Singapore Ministry of Education website http://www.moe.gov.sg/media/speeches/2010/09/23/work-plan-seminar-2010.php

Ng, E. H. (2010c). An Interview with Singapore's Minister of Education [Video file]. Retrieved from http://www.youtube.com/watch?v=-bYwdRa9fQM&feature=fvsr

Ng, E. H. (2010d). *Keynote Address by Dr Ng Eng Hen, Minister for Education and 2nd Minister for Defence at the "Building Blocks for Education: Whole System Reform" International Education Summit on Tuesday, 14th September 2010 at 11.30 am in Toronto, Canada.* Retrieved from http://www.moe.gov.sg/media/speeches/2010/09/14/keynote-address-by-minister-at-international-education-summit.php

Ng, E. H. (2011). *Social Mobility – The Singapore Story: Past, Present and Future*. Retrieved from Singapore Ministry of Education website: http://www.moe.gov.sg/media/speeches/2011/03/07/fy-2011-committee-of-supply-de-1.php

Ng, J. (2012). My child is gifted. *The Sunday Times.* Retrieved from http://www.nie.edu.sg/files/newsroom/mediacoverage/My%20Child%20Is%20Gifted.pdf

Ng, P. (2010). The evolution and nature of school accountability in the Singapore education system. *Educational Assessment, Evaluation & Accountability*, *22*(4), 275-292. doi:10.1007/s11092-010-9105-z

North Central Regional Educational Laboratory & The Metiri Group. (2003). *enGauge 21st Century Skills: Literacy in the Digital Age*. Retrieved from

http://pict.sdsu.edu/engauge21st.pdf

Nudzor, H. (2009). Re-conceptualising the paradox in policy implementation: a post-modernist conceptual approach. *Discourse: Studies in the Cultural Politics of Education*, 30(4), 501-513. doi:10.1080/01596300903237255

O'Neill, E. (2010). The ministry's 21st century obsession. *Teacher*. Retrieved from British Columbia Teachers' Federation website http://bctf.ca/publications/NewsmagArticle.aspx?id=21688

Organization for Economic Cooperation and Development. (1996). *The Knowledge-based economy*. Retrieved from http://www.oecd.org/dataoecd/51/8/1913021.pdf

Organization for Economic Cooperation and Development. (2005). *The definition and selection of key competencies*. Executive summary. Retrieved from http://www.oecd.org/dataoecd/47/61/35070367.pdf

Organization for Economic Cooperation and Development. (n.d.). *21st Century Learning: Research, Innovation and Policy*. Retrieved from http://www.oecd.org/dataoecd/39/8/40554299.pdf

Osborne, G. (2011). Waiting on 21st century learning…without apology to "Waiting on Superman". *Teacher*. Retrieved from British Columbia Teachers' Federation website http://bctf.ca/publications/NewsmagArticle.aspx?id=21924

Parkes, P. (2012, March 20). Report from the BCTF Annual General Meeting [Web log message]. Retrieved from http://politicalsensei.wordpress.com/2012/03/20/report-from-the-bctf-annual-general-meeting/

Partnership for 21st Century Skills. (2008). *21st century skills, education & competitiveness: A resource and policy guide*. Retrieved from Partnership for 21st Century Skills Website: http://p21.org/documents/21st_century_skills_education_and_competitiveness_gui

de.pdf

Partnership for 21st Century Skills. (2009). *P21 Framework Definitions.* Retrieved from

Partnership for 21st Century Skills Website:

http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf

Pinar, W. (2011). *Allegories of the Present: Curriculum Development in a Culture of*

Narcissism and Presentism [Class hanout]. Department of Curriculum and

Pedagogy, University of British Columbia, Vancouver, Canada.

Point, L. S. (2010). *Speech from the Throne.* Retrieved from Legislative Assembly of British

Columbia website http://www.leg.bc.ca/39th2nd/2010_ThroneSpeech.pdf

Point, L. S. (2011). *Speech from the Throne.* Retrieved from Legislative Assembly of British

Columbia website

http://www.leg.bc.ca/39th4th/Speech%20from%20Throne_Oct%202011_WEB.pdf

Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annual Review Of*

Sociology, *30*(1), 199-220. doi:10.1146/annurev.soc.29.010202.100037

Premier's Technology Council. (2010). *A vision for 21st century education*. Retrieved from

http://www.gov.bc.ca/premier/attachments/PTC_vision%20for_education.pdf

Prior, L. (2003). *Using documents in social research.* London : Sage Publications.

Rawolle, S. & Lingard, B. (2008). The sociology of Pierre Bourdieu and researching

education policy. *Journal of Education Policy*, 23(6), 729-741.

doi:10.1080/02680930802262700

Rose, R. (1972). Why comparative policy studies?. *Policy Studies Journal*, 1(1), 14-17.

doi:10.1111/1541-0072.ep11856138

Sclafani, S. K. (2008). Two Roads to High Performance. *Educational Leadership*, *66*(2), 26

-30.

Sim, A. (2011). *Speech by Ms Sim Ann, Senior Parliamentary Secretary for Ministry of*

Education and Ministry of Law at the Parliamentary Debates on President's

Address, 17 October 2011. Retrieved from Singapore Ministry of Education

website http://www.moe.gov.sg/media/speeches/2011/10/17/speech-by-ms-sim-ann-

at-the-parliamentary-debates.php

Simeon, R. R. (1976). Studying public policy. *Canadian Journal of Political Science*, 9(4),

548-580. Retrieved from EBSCO*host*.

Sims, J. (2010). 21st Century Learning Initiative in BC. *Teacher*. Retrieved from

http://bctf.ca/publications/NewsmagArticle.aspx?id=21774

Singapore Ministry of Education. (2000). *Joint Statement from the 2nd APEC Education*

Ministerial Meeting "Education for Learning Societies in the 21st Century" 7 April

2000. Retrieved from http://www.moe.gov.sg/media/press/2000/pr07042000.htm

Singapore Ministry of Education. (2008a). *MOE Launches Third Masterplan for ICT in*

Education. Retrieved from http://www.moe.gov.sg/media/press/2008/08/moe-

launches-third-masterplan.php

Singapore Ministry of Educaiton. (2008b). *Recent developments in Singapore's education*

system: Gearing up for 2015. Retrieved from http://sg-education-in-the-21st-

century.wikispaces.com/file/view/Gearing+up+for+the+2015.pdf

Singapore Ministry of Education. (2009). *Summary of Preliminary Recommendations of*

PERI Committee. Retrieved from

http://www.moe.gov.sg/media/press/files/2009/01/peri-recommendations-

summary.pdf

Singapore Ministry of Education. (2010a). *Nurturing our young for the future.* Retrieved

from http://www.moe.gov.sg/committee-of-supply-debate/files/nurturing-our-

young.pdf

Singapore Ministry of Education. (2010b). *MOE to Enhance Learning of 21st Century*

Competencies and Strengthen Art, Music and Physical Education. Retrieved from

http://www.moe.gov.sg/media/press/2010/03/moe-to-enhance-learning-of-21s.php

Singapore Ministry of Education. (2010c). *Building Blocks for Education: Whole System*

Reform Toronto, September 2010 Building a National Education System for the

21st century: The Singapore Experience. Retrieved from

http://www.edu.gov.on.ca/bb4e/Singapore_CaseStudy2010.pdf

Singapore Ministry of Education. (2010d). Teaching and Learning of 21st Century

Competencies in Schools [PowerPoint slides]. Retrieved from National Institute of

Education website

http://www.nie.edu.sg/files/EPD%20Presentation%20@%20TE21%20Summit_(fi

nal).pdf

Singapore Ministry of Education. (2011a). *Education statistics digest 2011*. Retrieved from

http://www.moe.gov.sg/education/education-statistics-digest/files/esd-2011.pdf

Singapore Ministry of Education. (2011b). *Masterplan for ICT in Education. Annual e-*

learning Standards Seminar SIM. Retrieved from

http://www.itsc.org.sg/upload/download/elearning2011/Masterplan%20for%20ICT

%20in%20Education%20presentation%20at%20SIM%20111111

Singapore Ministry of Education. (2012a). *Our Mission*. Retrieved from

http://www.moe.gov.sg/about/#our-mission

Singapore Ministry of Education. (2012b). *Our Basis for Survival & Success.* Retrieved

from http://www.moe.gov.sg/about/#basis-for-survival

ST Editorial. (May, 2012). Value and values of school volunteers. *The Straits Times*.

Retrieved from

http://www.lexisnexis.com.ezproxy.library.ubc.ca/hottopics/lnacademic/?verb=sr&

csi=8399&sr=HLEAD(Value+and+values+of+school+volunteers)+and+date+is+

May,%202012

Stack, M. (2006). Testing, Testing, Read All About It: Canadian Press Coverage of the PISA Results. *Canadian Journal Of Education*, *29*(1), 49-69.

Steffenhagen, J. (2010a). Back to School: Education Minister Margaret MacDiarmid. *The Vancouver Sun*. Retrieved from http://blogs.vancouversun.com/2010/08/31/back-to-school-education-minister-margaret-macdiarmid/

Steffenhagen, J. (2010b). Report from Saturday meeting of school trustees. *The Vancouver Sun*. Retrieved from http://blogs.vancouversun.com/2010/10/23/report-from-saturday-meeting-of-school-trustees/

Steffenhagen, J. (2011). Do school superintendents still support the FSA? (Update). *The Vancouver Sun*. Retrieved from http://blogs.vancouversun.com/2011/01/20/do-school-superintendents-still-support-the-fsa-update/

Steffenhagen, J. (2012). George Abbott and John Abbott address B.C. school superintendents. *The Vancouver Sun*. Retrieved from http://blogs.vancouversun.com/2012/02/20/george-abbott-and-john-abbott-address-b-c-school-superintendents/

Strike, K. A. (1985). Is there a conflict between equity and excellence? *Educational Evaluation and Policy Analysis* 7(4), 409-416.

Stromquist, N. P. (2002). *Education in a globalized world: The Connectivity of economic power, technology, and knowledge* (pp. 37-62). New York: Roman & Littlefield Publishers, Inc.

Tan, C. Y. (2010). *Speech by Mrs Tan Ching Yee, Permanent Secretary, Ministry of Education, at the NIE Teachers' Investiture Ceremony on Thursday, 15 July 2010, at 2.30pm, at the Nanyang Auditorium, Nanyang Technological University*. Retrieved from Singapore Ministry of Education website

http://www.moe.gov.sg/media/speeches/2010/07/15/speech-by-mrs-tan-ching-yee-at.php

Tan, Y. H. I. (2012). MOE has role in 'arms race'. *Today Voices*. Retrieved from http://www.todayonline.com/Voices/EDC120607-0000042/MOE-has-role-in-arms-race

Teo, C. H. (1998). *Talking Points for Radm. Teo Chee Hean, Minister For Education and 2nd Minister For Defence, at the 1998 World Economic Forum Annual Meeting Educating Tomorrow's Global Citizen: What Should We Be Teaching Today's Youth? (Tuesday, 3 Feb 98).* Retrieved from Singapore Ministry of Education website http://www.moe.gov.sg/media/speeches/1998/030298.htm

Teo, E. (2011). *"What is the New Normal for the Public Service?" - Speech by Mr Eddie Teo, Chairman PSC, at the 2011 Singapore Seminar on 5 November 2011 in London.* Retrieved from Singapore Public Service Commission website http://www.pscscholarships.gov.sg/content/pscsch/default/outreach/media/speeches/singsem_5Nov2011.html

Turner, J. (2011). Teaching and learning in the 21st Century. *Teacher*. Retrieved from http://bctf.ca/publications/NewsmagArticle.aspx?id=22399

Waithman, M. (2009). *The politics of redistribution and recognition: A retrospective case study of one inner-city school* (Doctoral dissertation). Retrieved from https://circle.ubc.ca/

Wells, T. (2005). Educational Policy Networks and Their Role in Policy Discourse, Action, and Implementation. *Comparative Education Review*, 49(1), 109-117. Retrieved from EBSCO*host*.

Whitney, D., & Trosten-Bloom, A. (2003). *The power of Appreciative Inquiry. A practical guide to positive change.* San Francisco: Berrett-Koehler Publishers.

APPENDIX I – SOME NOTIONS OF 21ST CENTURY SKILLS AND COMPETENCIES

Table 1: Summary of 21st Century Student Outcomes by P21 (2008)

P21 Framework for 21st Century Student Outcomes	Description
Core subjects that weave 21st Century interdisciplinary themes into the academic coursework	Core subjects include i. English/Reading/Language arts, ii. World Languages iii. Arts iv. Mathematics v. Economics vi. Science vii. Geography viii. History ix. Government and Civics. 21st Century interdisciplinary themes include i. Global Awareness • Using 21st century skills to understand and address global issues. • Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts. • Understanding other nations and cultures, including the use of non-English languages. ii. Financial, Economic, Business and Entrepreneurial Literacy • Knowing how to make appropriate personal economic choices. • Understanding the role of the economy in society. • Using entrepreneurial skills to enhance workplace productivity and career options.

	iii. Civic Literacy
	• Participating effectively in civic life through knowing how to stay informed and understanding governmental processes.
	• Exercising the rights and obligations of citizenship at local, state, national and global levels.
	• Understanding the local and global implications of civic decisions.
	iv. Health Literacy
	• Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health.
	• Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction.
	• Using available information to make appropriate health-related decisions.
	• Establishing and monitoring personal and family health goals.
	• Understanding national and international public health and safety issues.
	v. Environmental Literacy
	• Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems.
	• Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development,

	resource consumption rate, etc.).
	• Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
	• Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

Learning and Innovation Skills	These include:
	
	i. Creativity and Innovation
	     a. Think creatively
	     b. Work creatively with others
	     c. Implement Innovations
	
	ii. Critical Thinking and Problem Solving
	     a. Reason effectively
	     b. Use Systems Thinking
	     c. Make judgments and decisions
	     d. Solve problems
	
	iii. Communication and Collaboration
	     a. Communicate clearly
	     b. Collaborate with others

Information, Media and Technology Skills	They include:
	i. Information literacy
	     a. Access and evaluate information
	     b. Use and manage information
	
	ii. Media literacy
	     a. Analyze media
	     b. Create media products
	
	iii. ICT (Information, Communications and Technology) Literacy
	     • Apply technology effectively

Life and Career Skills	They include:
	i. Flexibility and adaptability
	     a. Adapt to change
	     b. Be flexible

	ii. Initiative and self-direction
	a. Manage goals and time
	b. Work independently
	c. Be self-directed learners
	iii. Social and cross-cultural skills
	a. Interact effectively with others
	b. Work effectively in diverse teams
	iv. Productivity and accountability
	a. Manage Projects
	b. Produce Results
	v. Leadership and responsibility
	a. Guide and lead others
	b. Be responsible to others

Table 2: Summary of the OECD Framework for 21st Century Competencies (Ananiadou & Claro, 2009)

OECD Framework for 21st Century Competencies (acquaintance with ICT operations and concepts encompasses all dimension)	Description

Information Dimension	These include:
	i. Information Management Skills: searching, selecting, evaluating and organizing information
	   a. Information literacy
	   b. Research and inquiry
	   c. Media literacy
	
	ii. Knowledge Creation Skills: restructuring and modeling of information and development of own ideas
	   a. Creativity and innovation
	   b. Problem solving
	   c. Decision-making

Communication Dimension	These include:
	i. Effective communication
	   a. Information and media literacy
	   b. Critical thinking
	   c. Communication skills
	
	ii. Collaboration and virtual interaction

	a. Collaboration/team working b. Flexibility and adaptability c. Productivity

Ethics and Social Impact Dimension	These include:
	
	i. Social responsibility
	    a. Critical thinking
	    b. Initiative and self-direction
	    c. Decision-making
	
	ii. Social Impact
	    a. Digital citizenship
	    b. Leadership
	    c. Responsibility

APPENDIX II – SUPPORITNG INFORMATION FOR FINDINGS ON 21CL IN BC

Table 1: Strategies for enabling province-wide personalized learning (BCEd, 2011d)

Area	Strategy
Exemplars	• Identifying and building on promising examples of personalized learning
Stakeholders	• Redefining the roles of the school, teacher, student, and parent/family in the learning process
Curriculum, Pedagogy, Assessment	• Recognizing the critical role of effective instruction in enabling personalized learning • Using evidenced-based research to improve the effectiveness of personalized learning practices • Improving connections between student learning, curriculum, instruction, classroom-based assessment, and province-wide assessment • Implementing flexible but rigorous curriculum, assessment and reporting tailored to each student's interests and abilities
Supporting structures	• Ensuring equitable access to technology that supports learning • Developing centres of innovation that will explore and evaluate new approaches before implementing them on a broader scale • Funding our education system to support effective personalized learning practices • Refining legislation to increase flexibility and innovative practice • Redefining our concept of time in the education system (e.g. school day, semester or year-long courses) • Implementing information and learning management systems that support and improve student learning

Table 2: Stakeholder Engagement Activities

Stakeholder involved	Timeline	Activity/Description
Students	May 2007	"In May 2007, the Canadian Council on Learning co-hosted a student conference with 10 school districts that have worked with the 21st Century Learning Initiative (Canada) in British Columbia and the Ministry of Education. Sixty students from the 10 school districts came together with school and district staff to network and explore next steps." (BCSSA, 2007, pp.1).

District 64 superintendent and students	Mar 2010	The Ministry had a discussion on 21st Century Learning with district 64's superintendent Jeff Hopkins and two students. It was reported that "SD# 64 has put many of John Abbott's principles into action and certainly challenged the thinking within the ministry" (Gorman, 2010).
BCSTA, BCCPAC, BCPVPA, BCSSA.	4 June 2010	Minister McDiarmid chaired the Learning Roundtable in which she provided an overview of the work done by BCPVPA in the Student Voice initiative concerning 21st Century learning. She outlined the principles of 21st Century Learning and invited the stakeholder groups to voice their concerns. Notably, the BCTF declined to attend the Learning Roundtable meeting (BCEd, 2010a).
BCSSA	19 Aug 2010	The Ministry presented the case for change and made the case for personalized learning. During the presentation, it was mentioned that the move arose from feedback from stakeholders, including superintendents, as well as from research and international trends about the inadequacy of the current system (BCEd, 2010b).
BCTF executive committee	17 Sep 2010	Ministry's superintendent of achievement, Rod Allen, gave a presentation to the BCTF Executive Committee on 21st Century Learning and personalized learning (BCTF, 2010).
Superintendents, administrators, principals and vice-principals, select teachers and a small number of local union and BCTF executive members and staff	17-19 Nov 2010	BCSSA Fall Conference with Minister, Deputy Minister, Valerie Hannon and Tony Mackey presenting on 21st Century Learning and personalized learning as the next step in BC educational reform (Hannon & Mackay, 2010a, 2010b, 2010c).
Industry, academia, representatives of teachers, school districts administrators and Ministry of Education	Prior to launch of PTC Report in Dec 2010	The development of the vision of 21st Century education was completed through extensive independent research and consultation with industry, academia and representatives of teachers, school district administrators and the Ministry of Education (PTC, 2010).

Superintendents, Secretary-Treasurers, Board Chairs and BCPSEA Trustee Representatives	19, 20 May 2011	Invitation letter by Deputy Minister James Gorman on 20 April 2011 to discuss collective bargaining and human resource strategies in the context of Personalized Learning. District examples of initiatives in Personalized Learning and the implications for teachers, principals and district staff were presented. BCPSEA also covered the operational implications of personalized learning and built connections to activities at the bargaining table (BCEd, 2011b).
BCSSA	18 Aug 2011	Ministry continued theme on education transformation during its presentation to the superintendents during the Summer Leadership Academy (Gorman, 2011).
Superintendents	7 Sep 2011	Ministry organized a provincial conversation on 21st Century Learning through personalized learning for superintendents and lead ministry staff (BCEd, 2011g).
Students, Teachers, Parents	Before Oct 2011, undetermined.	Launch of the "Personalized Learning in BC: Interactive Discussion Guide" with 9 survey questions accompanying the write up for the public to respond (BCEd, 2011d).
General Public	Oct 2011-ongoing	Launch of BC Education Plan and invitation for online public engagement (BCEd, 2011e).
BCSTA	9 Dec 2011	Ministry presentation to trustees during 2011 BCSTA Academy on thinking behind funding and support to school boards in relation to upcoming system changes (BCEd, 2011h).
General Public	19 Jan 2012	1 hour twitter chat with Minister George Abbott on education transformation in BC which registered 668 tweets (BCEd, 2012a).
BCSSA	18 Feb 2012	Minister George Abbott and John Abbott reinforced the impetus for 21st Century Learning and personalized learning. They positioned BC as highly equipped to take on the education reform due to the semi-autonomy afforded districts and the strong support in direction, resources and focus from the government (Steffenhagen, 2012).

Table 3: Existing Challenges faced by the Education System

Challenge	Description
Stagnant post-secondary education transition rate	"The Dogwood Completion (graduation) rate is 80% but it has not improved in the last five years and the graduation rate for Aboriginal students has remained at about 50% during this time. Every year, about 10,000 students leave the system without graduating. Of the students who graduate about one in five cannot read at the international standard" (BCEd, 2011d, pp. 7).
Constraints of too many prescribed learning outcomes on teacher autonomy	"Over the past several years, teachers, administrators, and other education partners have said: British Columbia's current curriculum has too many prescribed learning outcomes. As a result of too many learning outcomes, teachers do not have the autonomy or time to tailor curriculum to learners' needs. BC's curriculum should focus more on higher-order concepts than simple and discrete facts" (BCEd, 2011d, pp. 16).
Unsatisfactory feedback from various education stakeholders	Post-secondary institutions, employers and students themselves are reporting that successful graduates are leaving the school system without the skills and knowledge to compete in the 21st Century. The inability of the education system to keep up with the changing external environment in terms of demographic shifts, changing technologies and concerns over competitiveness have led to disengagement of students, low level of teacher engagement and frustrated and concerned parents (BCEd, 2010b).
Declining quality of educational outcomes	Foundation Skills Assessment (FSA) results have been declining since 07/08 for Grades 4 and 7 (Ministry Presentation to BCSSA, 2010). Almost 40 per cent of adult British Columbians are unable to understand complex printed information in their choice of Canada's official languages (BCEd, 2011c).

Table 4: Emerging Trends in the Education Context (BCEd, 2011c)

Area	Description
Declining cohort enrolment	Enrolment in the K–12 system declined between 1997/98 and 2010/11 by approximately 60,500 students (public only).
Readiness of pre-school students	Almost one in three children starts kindergarten without the skills needed to succeed. These students are likely to have difficulty throughout their education.
Growing demand in special needs education	The number of children with special needs funding increased by 5,900 between 2002/03 and 2010/11, from 18,360 to 24,260.
Growing demand in	More than 64,450 students receive English-as-a-second-language

ESL education	(ESL) services, up from approximately 60,150 in 2003/04.
Growing demand in online and distributed learning	Online and distributed learning, offering even more personalized schooling choices, more than doubled in demand between 2006/07 and 2009/10 to over 71,000 students, despite the decline in overall student enrolment across the school system.
Expertise loss from retirement of experienced educators	About 20 per cent of B.C.'s teachers and administrators could be retiring in the next five years. Many of these experienced educators have specialized skills that are needed by the school system.

Table 5: Summary of Recommendations in "Schools in the Future" Paper (21st Century Learning Initiative, 2010).

Area	Recommendations of the "Schools in the Future" Paper
Conceptions of Learning and Learner	• Individualized learning paths versus pre-programmed paths from which students choose their course of study. • A much greater emphasis on experiential and situational learning, especially as students get older. • A much greater emphasis on constructivist and inquiry-based practices. • A de-emphasis of courses from K to 12 and a move toward ensuring deep learning that matches developmental levels, and is naturally interdisciplinary.
Conceptions of Teaching and Teacher	• The evolution of the teacher from the role of instructor when children are young to a much more complex and professional role of learning facilitator as students get older. • Rich assessment and reporting based on competencies rather than courses or disciplines, and that uses language and artefacts rather than scores to show achievement. • Post-Secondary transition based on the demonstration of competencies rather than marks in pre-requisite courses.
Conceptions of School and Community	• A much greater use of community members and organizations in the direct delivery of educational programs, and in the support of apprentice-like learning outside the school. • A student-teacher ratio that varies greatly depending on age and learning activity. • A sliding scale of student dependency on teacher and school-as-place that decreases with age, so allowing growth in student choice and responsibility.

Table 6: GELP objectives and members (Hannon & Mackay, 2010b)

History	• The GELP was set up in September 2009 and comprises consortium and jurisdiction partners, including the IU.
Objectives	• To advocate the vision of 21st Century Learning • To develop leadership capacity to transform education systems • To accelerate and sustain transformation efforts within GELP members' local and national systems • To grow a global community of education leaders and innovators • To create a global movement towards 21st Century Learning
Partners	Consortium Partners: • The Asia Education Foundation[24] - The Asia Education Foundation (AEF) is a joint activity of Asialink at the University of Melbourne and Education Services Australia Ltd. The AEF supports schools to implement the Asia and Australia's engagement with Asia cross-curriculum priority of the Australian Curriculum. • The Bill & Melinda Gates Foundation[25] - The Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Jeff Raikes and Co-chair William H. Gates Sr., under the direction of Bill and Melinda Gates and Warren Buffett. • Bridge[26] – **Bridge specializes in transforming leadership, transforming teams and supporting organizations through strategic change.** • Cisco[27] – Cisco designs, manufactures, and sells Internet Protocol (IP)-based networking and other products related to the communications and information technology (IT) industry and provides services associated with these products and their use.

---

[24] http://www.asiaeducation.edu.au/about_aef_landing_page.html
[25] http://www.gatesfoundation.org/about/Pages/foundation-fact-sheet.aspx
[26] http://www.bridge-partnership.com/
[27] http://www.cisco.com/assets/cdc_content_elements/docs/annualreports/media/2011-ar.pdf

- Harvard Graduate School of Education[28] – A graduate school of education that prepares leaders in education and that generates knowledge to improve student opportunity, achievement, and success.

- Hay Group[29] - Hay Group is a global management consulting firm that works with leaders to transform strategy into reality.

- Innovation Unit – The IU is a not-for-profit social enterprise with an experienced team of partners and senior associates. The Unit enables leaders in public education to create innovation that is disciplined, radical, scalable and sustainable (Gorman, 2010).

- McKinsey & Company[30] - McKinsey & Company is a global management consulting firm that advises businesses, governments, and institutions.

Jurisdiction Partners:

- Australia: Victoria
- Canada: Ontario
- China: Beijing, Chaoyang District
- England
- Finland
- South Korea
- New Zealand
- USA: New York City

Table 7: Components of 21st Century Curriculum (Hannon & Mackay, 2010a)

Component	Description
New basic skills	Literacy, numeracy and ICT. These are deemed as not only fundamental for life, but vital for learning other subjects and for giving confidence to the learner to then take on more advanced topics.
Core subjects	English, Maths, Science, and Technology. Students need a firm grounding in a wide range of subjects so that they can find out what interests them and exercise choice later on. It is also deemed as contributing to a broad-based education that cultivates skills.
21st century skills	Reference was made to those presented by the P21, OECD and the book "21st Century Skills – Learning for life in our times" by Berne Trilling and Charles Fadel. Trilling is global director for Oracle

---

[28] http://www.gse.harvard.edu/about/

[29] http://www.haygroup.com/ww/

[30] http://www.mckinsey.com/about_us

	Education Foundation and represents the foundation on the P21 board. Fadel is global leader for education at Cisco Systems and is the Cisco board member of the P21. Both of them also co-chair the P21's Standard, Assessment and Professional Development Committee. Consolidating from the above, a list of eight skills deemed to be consistent over the various model was delineated by the IU: 1. Gathering, synthesizing, and analyzing information 2. Working autonomously to a high standard with minimal supervision 3. Leading other autonomous workers through influence 4. Being creative and turning that creativity into action 5. Thinking critically and asking the right questions 6. Striving to understand others' perspectives and to understand the entirety of an issue 7. Communicating effectively, often using technology 8. Working ethically, firmly based in both your own society and the planet as a whole
Disciplinary knowledge	These include science (and scientific method), social science (e.g. economics) and law, 'disciplines' which reach across subjects to make people rigorous thinkers.
Specialist subjects	Students need to be engaged and to follow their passions. It was claimed that this incites a love of learning and develops real depth before they can get turned off by one-size-fits-all education.
Ethics and citizenship	This is deemed as fundamental to the above five strands.

Table 8: New Skills for a New World by Schleicher from OECD (Hannon & Mackay, 2010a)

The great collaborators and orchestrators	The more complex the globalised world becomes, the more individuals need to collaborate and share and jointly develop knowledge
The great synthesisers	Conventionally, our approach to problems was breaking them down into manageable bits and pieces, today we create value by synthesising disparate bits together
The great explainers	The more content we can search and access, the more important the filters and explainers become
The great versatilists	Specialists generally have deep skills and narrow scope, giving them expertise that is recognised by peers but not valued outside their domain

	Generalists have broad scope but shallow skills
	Versatilists apply depth of skill to a progressively widening scope of situations and experiences, gaining new competencies, building relationships, and assuming new roles. They are capable not only of constantly adapting but also of constantly learning and growing
The great personalizers	A revival of interpersonal skills, skills that have atrophied to some degree because of the industrial age and the Internet
The great localisers	Localising the global

Table 9: Research-derived principles for an effective learning environment from

"The Nature of Learning: using research to inspire practice" (OECD, 2010, as cited in

Hannon & Mackay, 2010c)

An effective learning environment is one that:	
1	Makes learning central, encourages engagement, and learners increasingly understand themselves as learners ('regulation')
2	Is acutely sensitive to the individual differences among the learners including their prior knowledge, and is demanding for each learner but without excessive overload;
3	Is highly attuned to the learners' motivations and the key role of emotions;
4	Uses assessments that are consistent with its aims, with strong emphasis on formative feedback;
5	Promotes horizontal connectedness across activities and subjects, in- and out-of-school;
6	Is where learning is social and often collaborative.

Table 10: Policy Instruments to Implement Quality Teaching and Learning (BCEd,

2011d, BCEd, 2011e, Gorman, 2011)

Key Areas	Description	Actions
Pre-service Teacher Training	Influence teacher education programs through rigorous hiring and ensuring high certification standards.	• Work with the Deans and the University Presidents.

Teacher Regulation	New approach to teacher regulation and student safety that increases transparency and accountability in public and students' interest.	• Introduce new legislation for teacher regulation that raises stature of teaching profession and increase public confidence in the profession's disciplinary processes.
Performance Management	Provide regular feedback to support growth.	• Mentorship support for new teachers. • Strengthen performance culture in schools – negotiating change in the teachers' collective agreement (details unspecified).
Teacher Professional Learning	Support teacher leadership, action research and new learning.	• Instituting 6 non-instructional days. • Including professional development in collective agreement (details unspecified). • Having employer sponsored staff development. • Aligning in service-professional development with school district and government policy objectives.
Curriculum redesign	Aligning the curriculum for 21st Century Learning	• Curriculum will be redesigned to reflect the core competencies, skills and knowledge that students need to succeed in the 21st Century. • A curriculum with fewer and higher level outcomes will create time to allow deeper learning and understanding. • Increased flexibility in the curriculum to support personalized learning of students. • Working with education partners to identify the attributes of an educated citizen and how that will be articulated throughout the education programme in graduation.

Table 11: Policy Instruments for Implementing Flexibility and Choice

(Gorman, 2011)

Policy Intent	• Flexibility to respond to student needs, interests and learning preferences. • Flexibility to respond to diversity by differentiating resources - organizing classes to best support learning. • Flexible learning paths for students in when, where & how learning takes place.
Policy Effects	Boards of education will have greater flexibility: • to create more choices for students and families in terms of catchment areas and through academies. • in organizing classes for better management of human resources and to better control costs and direct limited resources to student learning. Districts will have greater flexibility to vary school day, school year and instructional time to enable: • Balanced school calendars. • Individualized learning time for each student. • Early or late starts. • Focused project based learning times.
Actions	• Bill 28 (Public Education Flexibility and Choice Act) negotiations seeking to preserve "choice and flexibility". • Calendar changes tabled through collective bargaining. • Hours of school operation, length of work day and minutes of instruction being considered at the bargaining table. • Current learning credential programmes will be expanded to better recognize learning outside the classroom (e.g. arts, sports, science and leadership programmes) to fairly acknowledge students' work (BCEd, 2011e).

Table 12: Policy Instruments for Implementing High Standards

New Performance Standards (Gorman, 2011)	• Relevant and robust provincial standards of knowledge and competencies will be developed in the core curriculum (BCEd, 2011e).
New approach to Assessments (Gorman, 2011)	• Reviews of provincial assessment programs will be conducted to ensure they focus on key competencies and critical skills and knowledge (BCEd, 2011e). • Rigorous assessment activities, whether province-wide or classroom-based, that support on-going student learning. Classroom assessment tools, including performance standards and other assessment support material, will be developed with educators (BCEd, 2011e). • The Ministry of Education is also exploring other assessment processes that would provide developmental information at the individual learner level to complement the new personalized learning approach (BCEd, 2011c)
More flexible reporting/feedback (Gorman, 2011)	• Ways of reporting student progress to parents in a more meaningful, effective and consistent manner across the province will be explored to enable parents to play a key role in shaping their children's education (BCEd, 2011e). • Effective intervention strategies and supports will be made available to teachers, students and parents to more quickly identify students who are struggling and to address their specific needs (BCEd, 2011e).

Table 13: Policy Intentions for Learning Empowered by Technology

Students	• Students will have more opportunity to develop the competencies needed to use current and emerging technologies effectively, both in school and in life. Access to digital tools and resources will support both face-to-face and online learning (BCEd, 2011e).
Teachers	• Educators will be given the supports needed to use technology to empower the learning process, and to connect with each other, parents, and communities (BCEd, 2011e). • An improved, provincial student information and reporting system will help teachers plan a more personalized learning experience with students and teachers (BCEd, 2011e). Technology will allow educators and students to assess progress more regularly than with traditional classroom

	assessments and to identify and address each student's challenges as they arise (PTC, 2010).	

Table 14: On-going Work to Support Learning Empowered by Technology (Gorman, 2011)

Partner/Area	Description	Actions
TELUS/ Telecommunications	Province's new 10 year agreement with TELUS (valued at 1-1.2 billion) to provide all telecommunications services for government will allow for improved access to the Internet in B.C. schools (Gorman, 2011). Specifically, the long term strategic partnership with TELUS provides: • Opportunities to receive up to 450 "free" school fibres upgrades. • Building a more robust data network that supports personalized learning environment over the next 5 years. • Access to additional services/rates for realising future personalized learning model. • Opportunity for lower rates in voice, long distance, conferencing, cellular services.	• Outline details – TELUS deal with ASBO, and other interested stakeholders. • Voice services – quantify opportunity and potential savings. • Plan 450 free school fibre upgrades. • Work with TELUS to access the Strategic Investment Fund.
Pearson Canada, Inc./BCeSIS	• It was found that there is continued support for BC electronic Student Information System (BCeSIS). • Need support of existing BCeSIS in the short term. • Need ability to support personalized learning (PL) environment.	• Release Gartner review of BCeSIS. • Ongoing communication to stakeholders.

	• Likely need to procure for product/service that supports future PL model.	
IBM/Technology Review	IBM Canada conducted high level review of technology across BC school districts between April and July 2011 and identified the following recommendations: • "Bring your own device" model for students. • Anywhere, anytime access for teachers. • Infrastructure expansion. • Bulk purchasing – leverage on existing provincial agreements. • Strive towards economies of scale. • Enhance technology integration. • Create collaborative forum.	• Verify findings and review recommendations with stakeholders. • Communicate details. • Establish ongoing technology forum with district representatives. • Action recommendations.

APPENDIX III – STAKEHOLDER RESPONSES TO 21CL IN BC

Summary of BCTF related findings in relation to 21st Century Learning

Summary of BCTF Responses to Impetus for Reform and the salience of 21st Century
Learning

This section provides a summary of BCTF responses to the ministry's position on modernising the education system for the 21st Century. It also analyses BCTF's responses to the salience of "21st Century Learning" as an issue of policy interest on the ministry's radar. As will be apparent, the BCTF finds little resonance with the Ministry's view on reforms for 21CL.

BCTF Response to "Modernising Education for the 21st Century" as Impetus for Reform

There are three main responses pertaining to the impetus for reform:

i. Privileging Educational Means over Ends

ii. Poverty of Perspectives on Educational Issues

iii. Promulgation of Old Discourses that Failed

Privileging Educational "Means over Ends"

While the BCTF agrees with the ministry that "the world is changing in ways that require change in education, and that technology can and should be used to support learning" (Naylor, 2011a, pp. 7), it argues that the "21st Century Learning" ideas forwarded by the PTC Report focuses too much on education as a means for preparation and training of students in service to economic competitiveness without due consideration for other ends towards which education should serve:

> Such skills look towards a brave new world of new economies and new work, or
> envision dire consequences if education systems fail to move towards such worlds.
> They focus almost exclusively on educational means and have little time for any
> discussion of ends, unless the ends are either linked to human capital (which in

152

Wikipedia – refers to the stock of competencies, knowledge and personality attribute embodied in the ability to perform labour so as to produce economic value), or perhaps assumed and implicit. The focus is primarily economic, and skills are identified and promoted so that the interests of the individual, corporations, and the state are assumed to be common (Naylor, 2011a, pp. 10).

Poverty of Perspectives on Educational Issues

Naylor (2011a) also critiques the "minimalist" and "simplistic" perspectives on educational issues presented in the 2010 PTC Report, which he characterised as consisting of complacent platitudes about the norms and areas of consensus in society that are easily challenged. He ultimately attributed the token treatment of educational issues (other than those related to technology) to the dearth of educators amongst its authors:

> It's curious that a technology group feels confident that it can define a vision of education for a new century, and while it certainly boasts impressive technology-related expertise, its efforts at articulating a vision of ethics, civic responsibility, and cross-cultural awareness might have been better left alone (Naylor, 2011a, pp. 11).

Promulgation of Old Discourses that failed

In the October 2010 article "The Ministry's 21st Century Obsession" in the BCTF Teachers' Newsmagazine, O'Neill pointed out that much of the language surrounding 21st Century Learning is not new to BC (O'Neill, 2010). She highlighted the similarity of the arguments made between 21st Century Learning and the ministry's 1990 paper entitled "Year 2000: A Framework for Learning". Then, the major social and economic changes that demanded educational change as well as new competencies in students were reported as such:

> These changes include an explosion in knowledge, coupled with powerful new communication and information processing technologies. The structure of the economy is shifting from being primarily resource-based to becoming a mixed economy with increasing emphasis on the information and service sectors. Society itself is changing and becoming much more diverse.
>
> In view of the new social and economic realities, all students, regardless of their immediate plans following school, will need to develop a flexibility and versatility undreamed of by previous generations. Increasingly, they will need to be able to employ critical and creative thinking skills to solve problems and make decisions, to be technologically literate as well as literate in the traditional sense, and to be good

153

communicators. Equally, they will need to have well developed interpersonal skills and be able to work co-operatively with others. Finally, they will need to be lifelong learners. (O'Neill, 2010, pp. 1).

O'Neill noted that the majority of the Year 2000 plan did not materialize, and wondered if the ministry's 21st Century Learning Agenda may not suffer the same fate due to a continual lack of support and resources from the Ministry:

> There is a disconnect between the vision that the ministry is putting forward and what is actually happening on the ground-where pervasive underfunding, fewer electives, larger classes, a lack of teacher autonomy, the constrictions of the accountability agenda, and the realities of child poverty all would seem to conspire to hamstring the ministry's proposals (O'Neill, 2010, pp.1).

BCTF Response to Salience of 21st Century Learning as an area of policy interest

There are three main responses pertaining to the salience of 21CL:

i.   Questioning who benefits from the promotion of 21CL

ii.   Problematizing the Validity of the Knowledge-based Economy Argument

iii.   Silences on Alternative 21CL Discourses

Questioning who benefits from the promotion of 21CL

In analysing the salience of 21st Century Learning as an area of policy interest, Naylor (2011a) questions if it ultimately serves to benefit those parties who would profit most from the infusion of technology-rich learning into educational practices. At the same time, he points out that other pertinent societal issues education must address have been left out of the discussion:

> One might reasonably ask whether current proposals for innovation simply reflect a newly-emerging dominant class of knowledge-economy multi-national corporations and high-tech companies, where de-schooling reflects outsourcing, and where privatization and technology-based learning offer rich rewards for the likes of Microsoft, Cisco, Apple, and others. It is also possible to argue that the lack of explicit ends in the current debate masks the implicit purposes inherent in the assumptions of a narrow view of a high-technology world and knowledge economies. If the world is as simple and as narrowly defined as this, then the focus on democratic societies, social justice, and sustainability is clearly unnecessary for some proponents

154

of 21st century learning (Naylor, 2011a, pp. 7).

One is left with the sense that this and many other bodies looking at 21st century learning skills have either fully bought into the high tech, high pay version of the new economy vision, or are the executives of high tech companies which stand most to gain from the increased use of technology in schools and society. While they argue for the needs of a knowledge-based society they rarely remove the "knowledge-based" and simply address the needs of society. Their focus on civil society, on culture, the environment, race, gender, disability, and equity is minimal or non-existent (Naylor, 2011a, pp. 13).

Going a step further, Director of BCTF Professional and Social Issues Division, Jinny Sims, argues that there is a concerted effort to commercialize and corporatize public schools to advantage big businesses and corporations:

> Big business and corporations seem to be the main drivers behind current reforms. There is a concerted attempt to commercialize and corporatize public schools. Through deliberate underfunding of public schools, policymakers have created space for business as consumers and salesmen. Corporate giants, like Bill Gates, are quite willing to invest hundreds of millions of dollars to support charter schools in order to ensure a marketplace for consumers of goods and services provided by companies that will earn billions. Others are turning to schools to provide students with specific job skills, so they do not have to invest money in training workforces. Both groups are driven by economic self-interest, and the concept of life-long learning, with students engaged in the process of learning, is lost. In the US, many charter schools are run by corporations and foundations using public funds and buildings to make a profit (Sims, 2010).

Problematizing the Validity of the "Knowledge-based Economy" Argument

On a more fundamental level, Naylor problematizes the validity of the concept of the knowledge-economy and its claims. He makes this case by citing the work of Livingstone (2004, as cited in Naylor, 2011a) which presented contrarian evidence to the need of transforming the education system for the knowledge economy:

> Livingstone has argued that the concept of the knowledge economy has been considerably overstated and oversold, providing evidence that there are far more jobs that have been or will be created that do or will require relatively low skill levels: The most recent thorough empirical assessments of skill changes in the US — which was the original source of claims about the shift to a knowledge-based economy — have also found little evidence for more than a gradual increase in job skill requirements either in the entire post-WWII period or in very recent trends (Barton, 2000; Handel, 2000). US Bureau of Labor Statistics' estimates project that only about 20 percent of

155

job openings will require a university degree in the early part of this century, compared with over a third of new entrants who have one, while the vast majority of new jobs will require only short-term training (Hecker, 2001). The weight of empirical evidence clearly indicates substantially less skill upgrading of jobs than the heralds of the knowledge-based economy typically assume. Future discussions of increasing demand for more highly skilled knowledge workers should pay at least as much attention to the slower growing forest of routine data transmitting, service providing, and goods processing jobs as to the faster growing knowledge work trees (pp. 15).

Naylor further notes that Livingstone (2004, as cited in Naylor, 2011a) has suggested that Canada, as with other nations, is witnessing "credential inflation", where employers consistently overstate the required credentials needed to do a job simply as a sorting mechanism for hiring. Livingstone (2004, as cited in Naylor, 2011a, pp. 15) argues there are many people now working with much higher educational credentials than are necessary for the work involved. Livingstone's overarching argument is that "while the case for a knowledge economy has been greatly overstated, imbalance and inequities are occurring in workplaces so that addressing over/under working and other inequities will benefit individuals and society".

Silences on Alternative 21CL Discourses

Naylor notes the presence of other discourses, for example, the UK "New Economies Foundation" report on "The Great Transition" referenced by Korten (2010, as cited in Naylor, 2011a), which articulates a "New Economy 2.0" where economic growth is not the main aim and the assumption that the interests of the individual, corporations, and the state are common is challenged:

> There is an important place in the New Economy 2.0 vision for advanced technologies and for global sharing of ideas and technology. This is particularly true for energy and communications technologies that wean us from dependence on fossil fuels and support collective decision making on a global scale. New Economy 2.0 does not, however, assume that technology will magically save us from our reckless abuse of one another and nature. Rather technology is a facilitator of the deep transformation of values and institutions required to achieve an economic system that meets the

needs of all in sustainable, creative balance with Earth's biosphere (pp. 11).

Naylor (2011a) also drew extensively from the "Multiliteracies" literature from the New London Group which presented an alternative vision of 21st Century Learning but for which the same global forces and technological advancements were seen as opportunities to educate for social equity and inclusive diversity. He questioned if the omission of such literature was not due to the challenge to established orders, such as capitalism, inherent in it.

Quoting from the work of anthropologist Wade Davis, BCTF President of Local 52, Prince Rupert, Joanne Larson (2011) also believed that preserving and understanding the importance of ethnodiversity is the key to preparing students for future success. To her, "the ancient wisdom permeating a myriad of cultures around the world is simply not inferior to the new knowledge and skill set evolving in western society. It is merely an alternate paradigm to how we should exist in our world and move forward as a people. This is precisely why I believe preservation and study of that wisdom should be the heart of education in the 21st century. Addressing global warming, environmental degradation, depletion of energy resources, unbridled population growth, and economic instability requires this" (Larson, 2011, pp. 1).

BCTF Response to Proposed Policy Options

This section provides a summary of BCTF's responses to the proposed policy option of 'personalized learning' and the other supporting implementation policies of 'quality teaching and learning', 'flexibility and choice', 'high standards' and 'learning supported by technology' articulated in the BC Education Plan (BCEd, 2011e).

Response to Personalized Learning

The following tables summarise the BCTF responses to personalized learning framed

according to conceptions of 'learner and learning', teacher and teaching' and conceptions of

'schooling'.

Table 1: BCTF Response to personalized learning in terms of Conception of the

Learner and Learning

Area of Response	Description
Lack of support from ministry in constructivist approaches	While the BCTF applauds the centrality of constructivist approaches in the discussion of personalized learning, it suggests that funding and accountability measures from the government actually limits its practice because they increase class size, teacher workload and the pressure for teachers to teach to the test (Naylor, 2011a).
Problematizing the emphasis on technology	Sims (2010) questioned if students are already spending too much time on social media and technology and wondered if their education experiences should further extend and entrench this. She also noted that many schools do not even have fully operational computer labs which may impede with the realisation of a greater use of technology in learning. In response to the "Bring your own device" model for students to leverage on technology in learning, equity concerns over the plight of students who may not have the familial resources to do so were raised (Kuehn, 2011, Sims, 2011). Kuehn (2011) also noted the comments by some of the value of overly focusing on technology, citing a New York Times article which reported that even parents in high-tech jobs in Silicon Valley choose to send their children to schools without computers and with a focus on development of humane qualities.
Challenging the examples held up as models	According to Osborne (2011), during the 2010 BCSSA Fall Conference, Hannon and Mackay presented the US Charter Schools as well as often made reference to Britain, the US and China as education models. While

	not opposed to external scans, he challenged the basis for looking to these systems as models to guide BC's reforms in view of BC's excellent system, and called for greater critical thinking when studying other models. Sims (2010) pointed out that 21st Century Learning originated in the UK as an experiment for students of low socio-economic backgrounds and was never meant for whole system reform. She argued that the move towards the latter is due to the influence of the neo-liberal agenda for accountability through measurable outputs, economic growth, privatization and commodification of public education/public services, with a focus on the individual and self-interest.

Table 2: BCTF Response to personalized learning in terms of Conception of Teacher

and Teaching

Area of Response	Description
Teachers are already practising 21st Century Learning Approaches	Various BCTF articles noted that the ministry was behind teachers' practice in 21st Century Learning approaches (Naylor, 2011a, Turner, 2011). On the BCTF website, it was noted that teachers were already leading the way with 21st Century Learning approaches. (BCTF, n.d.) Naylor (2011a) also reported examples of how BC teachers were already approaches that could exemplify "21st Century Learning" and alluded to the ministry's apparent ignorance about it. In the same vein, Sims (2010) noted the existence of teaching around the province that is based on sound pedagogy, uses a variety of tools, including new technologies and social media to actively engage students in their learning. Naylor (2011a) proposed that the innovations could be supported by the province, which

	has largely failed to fund, document, and share them. He opined that the ministry should consider what current innovations currently exist in the system and build on them in consultation with stakeholders instead of immediately enlisting foreign help in the form of the UK-based Innovation Unit.
Concerns over implications of personalized learning on teacher work conditions and nature of teaching	Kuehn (2011) expressed concerns over how the teacher can materialise personalized learning that create individual student learning plans that involved students and parents at the same time. He opined that the focus on individual student learning plans also explained why the Minister maintained that class size was not important as the assumption was that students would all be on individual plans, grouped around projects and not classes.

Turner (2011) expressed a similar concern that personalized learning might imply teachers may no longer be needed in the classroom but will merely facilitate students in engaging with their passions online or in the community. Falling back on her decade of experience with the government, she is skeptical of the plan for educational change: "when educational change is afoot, it usually has more to do with undermining an already tremendous school system, encouraging privatization of public services and cutting real dollars out of the budget so they can be spent elsewhere rather than making improvements to public education".

Sims (2011) noted the contrast between teachers' needs and the ministry's vision. She specified that teachers are asking for class size, class composition and specialist supports that allow them to meet the needs of every child while the reformers have visions of students attached to wireless digital devices taking personalized learning courses online, and students going out into the community to buy services. |

Table 3: BCTF Response to personalized learning in terms of Conception of Schooling

Area of Response	Description
Promotion of De-schooling	Naylor (2011a) noted that the removal of the primacy of the school as the place for the delivery of educational services and for the socialization of youth into civic and civic norms in the personalized learning plan may constitute a form of de-schooling which promotes the outsourcing of community resources and technologically based instructional methods to industry and business players.
Promotion of Privatization	Naylor (2011a) also reflected how in the ministry's vision, full or partial privatization of schools is seen as a favoured approach free from bureaucracy and able to innovate and change. This sense came through the promotion of schools including those of the Swedish independent schools, the San Diego Charter Schools and the Harris Federation of Schools in South London, UK, in which governance and administration (but not funding) lies outside the state or school district.
Problem of Province-wide Scaling	Turner (2011) noted that many of the examples cited as school models for emulation are taken from small scale institutions piloting programmes in private or charter schools. Naylor (2011a) pointed out the challenge in moving these pockets of small scale exemplars into large scale, system wide public education.

Response to the rest of the Policy Options

The table below summarises the main areas of responses of the BCTF to the other policy

options of 'quality of teaching and learning', 'flexibility and choice', 'high standards' and

'learning supported by technology'.

Table 4: BCTF Response to policy options in BC Education Plan other than

personalized learning

Policy Option in response to	Area of Concern	Description
Quality Teaching and Learning	Quality of major curricular and graduation requirement reviews developed in consultation with stakeholders, given the short time frame.	Kuehn (2011) noted that the BC Education Plan called for a i. redesign of the framework for the entire K-12 education to define competencies, curricular organization, performance standards requirements and assessment frameworks over only 6 months; ii. review of personalized learning in the context of special education over only 4 months; iii. redefinition of attributes of a graduate and graduation requirements over 4 only months.
Quality Teaching and Learning	Lack of details in BC Education Plan; historical and current lack of resources and support to teachers runs antithetical to the enabling of quality teaching and learning	In a letter responding to the BCPSEA, Naylor (2011b) critiqued that the ministry did not elaborate exactly how personalized learning can be operationalized or what support it would give to realise it. Kuehn (2011) pointed out that the BC Education Plan remained vague and called for major changes with no additional funding. Teachers are also skeptical because they have been trying to deliver quality education in an already under-resourced public education system that has seen diminishing support over the past decade (Turner, 2011, Sims, 2010).
Quality Teaching and Learning	Theme of aligning teacher practice to personalized learning and the consequent loss of teacher autonomy and professionalism as a means to ensure that the	Actions that are discerned as detrimental to teacher autonomy and professionalism (Kuehn, 2011): i. Giving employer control of professional development by its inclusion on the bargaining

	centrally set direction is followed by teachers.	table by BCPSEA; ii. Inclusion of performance management of teachers by principals on the bargaining table by BCPSEA.
Quality Teaching and Learning; High Standards	Conflict between the two policy options where accountability measures like large scale testing demanded by high standards limit teacher autonomy to deliver quality teaching and personalized learning for students	The PTC Report (2010) and the BC Education Plan (BCEd, 2011e) promote a view that uses technology to enable assessment for learning vis-à-vis assessment of learning. Naylor (2011a) sees this as an endorsement of BCTF's position on assessment for learning. However, he queried if the continued emphasis on FSA and Provincial Grade 10 and 12 examinations contradict this very same initiative. Sims (2011) makes a similar point that the focus on narrowly-defined measurable data by the standardised testing agenda narrows both teaching and learning and is also used by privateers to undermine public confidence in public education. The use of a standardized template through the provincial performance standards to assess student performance also runs antithetical to the idea of a personalized learning plan for each student (Kuehn, 2011). Kuehn (2011) calls this desire for accountability the paradox of personalization in a neo-liberal system.
Flexibility and Choice	Loss of fair protection for teachers and their conditions of work.	Actions that are discerned as detrimental to protection of teachers' work conditions (Kuehn, 2011): i. Stripping seniority and removing provisions that protect teachers from arbitrary work allocation are tabled by BCPSEA on the bargaining table in the name of giving administrators flexibility and choice in human resource management so as to direct limited resources to student learning. ii. Flexible learning paths for

		students which has no provisions for putting boundaries around hours of work or number of students being taught. iii. Proposals to give arbitrary power to school boards to set the calendar and define an extended school day are included on the bargaining table in the name of granting maximum flexibility to school districts in planning personalized learning.
Learning Supported by Technology	Concerns over the purpose and infrastructure readiness of technology in education	Larson (2011) argued that there is a tendency to confuse the ability to use technology with actual knowledge, contending that the first is merely a mechanical skill while the latter constituted wisdom which is necessary to prepare children for an uncertain future. Kuehn (2011) reflected on the inefficacy of the BCeSIS and queried the feasibility of setting up a new system by the end of the 2013-14 school year to store the personalized learning data of 600,000 students in BC.

<u>Summary of BCSTA related findings in relation to 21st Century Learning</u>

The BCSTA has consistently expressed its desire to engage actively with the Ministry "to discuss how boards and the Ministry of Education may work together to shape a vision for learning in the 21st Century and to consider how that vision may be translated into valued and sustainable programmes for students" (BCSTA, 2010b). This is evidenced through the various meetings that the BCSTA has had with Ministry officials, including the Minister, since the Learning Roundtable in June 2010 right up to the April 2012 BCSTA AGM (see Table 5 at the end of this section) (BCEd, 2010a, BCSTA, 2012). Trustees have also taken steps to extend conversations to explore 21st Century Learning within their own boards (Legislative Assembly of BC, 2010b). For instance, the Metro branch and the Northern Interior Branch had held professional development sessions focused on 21st Century Learning, personalized learning and implications for boards and districts for trustees and superintendents (BCSTA, 2011a).

On 23 October 2010, the BCSTA passed a resolution that issued advice to the Minister of Education, summarising its concerns about the plans for modernizing the education system for the 21st Century and the conditions for BCSTA's support of the Ministry's efforts (Steffenhgaen, 2010b):

> That the BCSTA advise the Minister of Education that change in public education for the 21st Century will be enthusiastically embraced if that change:
>
> a. has at its foundation the importance of positive relationships, particularly for students, and also among individuals and groups at all levels;
>
> b. is based on a vision developed through a collaborative process
>
> c. recognizes and builds on the existing strengths and successes of BC's public schools;
>
> d. is purposeful in enhancing the public system and deepening the democratic governance of public education;
>
> e. is adequately resourced.

Response to BC Education Plan on Funding Support

BCSTA was concerned with whether there will be adequate funding for enabling 21st Century Learning. This can be understood from its sense of the historical underfunding of BC education (Lombardi, 2010), including the midyear clawbacks of funding in the past years (Legislative Assembly of BC, 2010a). The need to look at stable and predictable funding in order to enable the vision of educational reform was repeated several times by BCSTA during the 2010 Legislative sessions (Legislative Assembly of BC, 2010b, 2010c). On 2 March 2011, the BCSTA sent a letter to request that the Ministry of Education devise an innovative and comprehensive formula which provides predictable and adequate funding to support the overarching vision of "21st Century Learning" and personalized instruction for all students (BCSTA, 2011b). On 25 March 2011, the Ministry responded that it was still studying the model but would "continue to provide boards with a predictable and flexible funding allocation that takes into consideration the unique enrolment and geographic traits of the urban and rural districts" (BCSTA, 2011b).

Response to BC Education Plan on Flexibility and Choice; High Standards

BCSTA is supportive of the policy option of "flexibility and choice" (which gives boards and districts greater autonomy to organize student learning) in the October 2011 BC Education Plan. For instance, BCSTA President recounted in the Legislative session on 22 Sep 2010 that there are structural impediments to educational reform, quoting the rigidity of school calendars as an example which limits the flexibility of school board to optimize the use of their limited budgets (Legislative Assembly of BC, 2010b). In its April 2011 AGM, the BCSTA also stated that, as with boards throughout Canada, it welcomes the flexibility and choice at the local level as part of boards' administration for education in the 21st Century (BCSTA, 2011a). During the December 2011 BCSTA Academy, the Ministry presented to

166

the BCSTA the new funding model which was aligned with the BC Education Plan. Under the plan, it was established that funding protection was not sustainable and will be moved from 100% to 98.5%. This will allow for funding that protects CommunityLINK[31] and that was built around need (as reflected from relevant data). In addition, it will enable more funding for districts with vulnerable student growth, provide more equitable distribution to remote and rural elementary schools as well as address transportation supplement and funding supplement to the smallest districts with low student enrolment (BCEd, 2011h).

In response to the BC Education Plan, various motions were raised during the BCSTA AGM in April 2012 surrounding mainly the concern over resource support, especially in the face of the vagueness of the plan in terms of details. A motion for the abolishment of the FSA was also raised, which directly contradicts the BC Education Plan's policy option of High Standards, which pivots on the continued use of province wide assessments (BCSTA, 2012). It is not known at the time of writing if these motions were carried.

The following table summarizes the activities that the BCSTA had undertaken with regard to 21st Century Learning and personalized learning:

Table 5: BCSTA Activities relating to 21st Century Learning and Personalized Learning

Event	Description
Learning Roundtable with Minister MacDiarmid, 4 June 2010 (BCEd, 2010a)	BCSTA President Connie Densiuk, Vice President Michael McEvoy and Executive Director, Stephen Hansen expressed support to Minister MacDiarmid on 21st Century Learning but raised concerns over charter schools as well as the funding mechanisms for the initiative.
Meeting with Minister	BCSTA President Connie Denesiuk and Vice President Michael McEvoy met with Education Minister Margaret MacDiarmid to

---

[31] CommunityLINK (**L**earning **I**ncludes **N**utrition and **K**nowledge) provides funding to all 60 boards of education to support vulnerable students in academic achievement and social functioning.

MacDiarmid, 24 June 2010 (BCSTA, 2010a)	propose the co-governance of public education. Minister MacDiarmid also discussed the Ministry moving forward with a 21st century learning agenda. BCSTA's President and Vice-President expressed a desire to become engaged in those important discussions as co-governors of the public education system. The meeting ended with a shared commitment to continue the dialogue on the challenges and opportunities facing public education in British Columbia.
Meeting with Ministry of Education officials, 22 October 2010 (BCSTA, 2010b)	This report is a summary of the presentations and discussion that took place when BCSTA board members, Provincial Councillors and school board chairs met with Ministry of Education officials to learn more about the Ministry's vision for personalized learning. Included in the report is a summary of questions and comments raised by individual trustees at the meeting which do not represent the position or opinion of the BCSTA.
Passing of BCSTA resolution regarding 21st Century Learning, 23 October 2010 (Steffenhagen, 2010b)	The Vancouver Sun reported that at the BCSTA Provincial Council meeting, the resolution that issued advice to the Minister of Education on the conditions for the BCSTA's support of modernizing the education system for the 21st Century.
BCSTA Trustee Academy, 9-11 Dec 2010 (BCSTA, 2010c)	The programme for the academy focused on understanding 21st Century Learning and personalized learning and its impact on leadership of school boards. Included among the presenters were Ministry officials, BCPSEA, Heather MacTaggart[32] and district presentations on examples of personalized learning.
BCSTA Letter to Minister, 2 March 2011 (BCSTA, 2011b) Minister Letter to BCSTA, 25 March 2011 (BCSTA, 2011b)	BCSTA sent a letter to request that the Ministry of Education devise an innovative and comprehensive formula which provides predictable and adequate funding to support the overarching vision of "21st Century Learning" and personalized instruction for all students. The Minister responded on 25 March 2011. In its letter, the Ministry stated that it was working with the field to define personalized learning and would be reviewing its accompanying funding to boards of education. The Ministry would review the current funding formula with the Technical Review Committee that included secretary treasurers and superintendents from urban and rural districts as it looks to ensure the allocation of funding aligns with 21st Century Learning. The Ministry will continue to provide boards with a predictable and flexible funding allocation that takes into consideration the unique enrolment and geographic traits of the urban and rural districts.

---

[32] MacTaggart co-authored the book "*Over Schooled But Undereducated*" with John Abbot, focusing on how the changing circumstances of the 21st century demand a different response from school systems to meet the needs of contemporary students.

BCSTA AGM, 14-17 April 2011 (BCSTA, 2011a)	During this meeting the following resolutions were carried: "Barriers to learning for the 21st Century" – That BCSTA work with the Ministry of Education and other partner groups, in a consultative process, to identify and remove barriers that may impede the implementation of innovative learning strategies. "Teacher Training for 21st Century Learning" – That BCSTA urge the BC College of Teachers to work with all postsecondary institutions to adapt teacher training and curriculum to meet the diverse needs of students in the 21st century's changing educational environment. As part of the CSBA, BCSTA noted that all provincial associations are having conversations around the skills students will need to be competitive in the 21st century. It was reported that boards throughout Canada share the goal for increased flexibility and autonomy at the local level and that success for all students, a focus on personalized instruction, supports for Aboriginal and vulnerable students, declining enrollment, and a lack of resources are common themes across the country.
BCSTA letter to education partners on "Barriers to 21st Century Learning" resolution, 17-22 June 2011 (BCSTA, 2011b)	Letter was sent out to Minister, BCCPAC, BCTF, BCSSA, BCASBO, BCPSEA, BCPVPA. Only BCCPAC responded on 25 Aug 2011 and suggested that the forum involving presidents of the various education stakeholder groups should be revived as it provided a viable platform to foster understanding about the barriers each organization faced.
BCSTA Trustees Academy, 8-10 Dec 2011 (BCEd, 2011h)	Ministry presentation to trustees on new funding model aligned with BC Education Plan. In a presentation by Stephen Murgatroyd to BCSTA entitled "Trustee Leadership in the 21st Century" presented among other things, "the need to eliminate standardized test connected to system evaluation and targets but to trust schools to self-assess" as a change that makes sense.

BCSTA AGM 26-29 April, 2012 (BCSTA, 2012)	The following motions relating to the BC Education Plan were raised: "BC Education Plan Implementation and Flexibility" Be it resolved: That BCSTA work with the Ministry of Education to identify and resolve issues surrounding the implementation process of the BC Education Plan; and that BCSTA work with the Ministry of Education to ensure that boards of education have the necessary flexibility to address local circumstances and needs. Rationale: Throughout the province there are many unknowns regarding the plan and its implementation, specifically: relationship among Project Based Learning Assessment, IRPs, and provincial examinations; equitable access to learning resources such as bandwidth, technology, and teacher training. "Impact of BC Education Plan" Be it resolved: That BCSTA work with the Ministry of Education and boards of education to study the possible financial impact of the proposed changes by the Ministry arising from the BC Education Plan, and that BCSTA report back the results of the study to the membership no later than AGM 2013. Rationale: The BCSTA should explore the cost of implementation to the districts: curriculum development; reorganization of the marking system; impact on special needs students; and the process of development of individual plans and cost of resources. "Elimination of Foundation Skills Assessment Testing" Be it resolved: That BCSTA call for the elimination of the Foundation Skills Assessment. Rationale: Personalized learning will require personalized assessment. Foundation Skills Assessment is an outdated model that is not

	appropriate or useful to Personalized Learning.
	<u>"Funding for furniture and equipment to meet new Education Plan"</u>
	Be it resolved:
	That BCSTA approach the Ministry of Education to fund boards of education for furniture and equipment to meet the challenges of the new BC Education Plan.
	Rationale:
	Earlier this year, the province published the BC Education Plan, which introduced the notion of Personalized Learning. New funding from the province, however, was not identified to support the necessary changes to schools requiring new furniture and equipment to ensure that boards of education could meet the new mandate for Personalized Learning. Currently, a school that is replaced or renovated for seismic reasons receives little or no funds for furniture replacement. The expectation is that furniture from the replaced school is to be utilized in the new school regardless of the age or condition of the furniture. More often than not, this furniture does not meet the requirements for new personalized learning spaces. If the province is serious about making changes to affect greater ability for children to succeed, it should provide more than a document; it should provide the necessary funding for furniture and equipment to outfit new types of learning spaces to enact a change in educational delivery.

<u>**Summary of BCSSA related findings in relation to 21st Century Learning**</u>

Superintendents have been tasked by the Ministry to be the leaders in the transformation of the education system for personalized learning (Kuehn, 2011). As such, it is not surprising that they have been the stakeholder group that have been engaged most frequently and who is most up to date on the Ministry's thinking over 21st Century Learning and personalized learning. Superintendents are expected to align their district's activities and initiatives in the following ways (Gorman, 2011):

- Identifying where to start the change

- Identifying district champions for personalized learning

- Identifying the new practices to introduce first

- Identifying the changes that have already been put in place

- Identifying the support for teacher development and growth at all stages

From what documents could be surfaced through this study, conversations for 21st Century Learning amongst the superintendents can be traced back to the Summer Leadership Academy of 2009. Steve Cardwell, then the Delta school district superintendent, delivered a presentation on "Student Engagement in an Age of Distraction" in which he touched on 21st Century skills by the P21 as well as personalized learning as possible responses to the question posed by the presentation's title (Cardwell, 2009). Thereafter, the BCSSA had been involved in discussions through its conferences:

<u>**Table 6: BCSSA Activities relating to 21st Century Learning and Personalized**</u>

<u>**Learning**</u>

Event	Description
BCSSA Summer Leadership, 19 Academy 2010	As a follow up to the announcement in the February 2010 Throne Speech to modernize the education system for the 21st Century, the idea of personalized learning was introduced to the Superintendents. The presentation concluded with promises of further opportunities for

	engagement to influence the vision for 21st Century Learning in BC as well as professional development opportunities supported by the Ministry. Superintendents were also encouraged to start their own professional learning on 21st Century Learning as well as facilitate professional development of others in their districts while begin to explore opportunities for personalized learning in their districts (BCEd, 2010b).
BCSSA Fall Conference, 18-19 Nov 2010	Valerie Hannon and Tony Mackay delivered presentations to BCSSA on 21st Century Learning and personalized learning, exposing superintendents to the thinking that had influenced ministry officials and policy makers (Hannon & Mackay, 2010a, 2010b, 2010c).
BCSSA Summer Leadership Academy, 18 Aug 2011 (Gorman, 2011)	Deputy Minister of Education presented updates on various systemic measures to support personalized learning, including thinking on teacher excellence, flexibility and choice, curriculum and assessment, technology, accountability and governance, as well as alignment. IBM presentation on insights to the future of learning along the theme of how technology may support educational transformation for personalized learning. Selected districts also shared on their efforts in 21st Century Learning and personalized learning.
BCSSA Winter Conference, 18 Feb 2012 (BCEd, 2012b)	Among other presentations, Minister George Abbott and John Abbott reinforced the impetus for 21st Century Learning and personalized learning messages through a joint address entitled "Reform and Renewal of the BC Education System". The address positioned BC as highly equipped to take on the education reform due to the semi-autonomy afforded districts and the strong support in direction, resources and focus from the government, in which the latter also benefits from diverse perspectives from the former in formulating central policies that work. The address also reiterated the teaching and learning models as well as the central role of students' voice, the partnerships of parents and the community in the BC Education Plan.

In terms of response, the BCSSA shared during the Learning Roundtable with Minister MacDiarmid on 4 June 2010 that while it strongly supported 21st Century Learning, external credentialing and learning pose threats to school district employees in terms of their job security; accountability towards parents; as well as the standardization and distribution of wealth (BCEd, 2010a).

The BCSSA itself reassures the public that it is fully cognizant and involved in the

discussions surrounding 21st Century Learning. In a 28 October 2010 BCSSA news release after then Premier Gordon's televised address, it was stated that "the province's superintendents are fully engaged in discussions around government's commitment to modernize the education system for the 21st Century" (BCSSA, 2010). This grasp of the issue can be seen through the BCSSA's response to Vancouver reporter Janet Steffenhagen's question of whether BCSSA supported the FSA on 20 January 2011, long before the BC Education Plan was published in October 2011 (Steffenhagen, 2011). In his reply, BCSSA President Steve Cardwell did not answer directly but stated that the BCSSA "continued to be willing to discuss provincial level assessment practices". He framed this willingness against the backdrop of the larger conversation that is occurring globally, nationally and within BC on personalized, 21st Century Learning in which how data on student success is gathered is an integral part and suggested that all partner groups must be involved in inclusive, collaborative discussions that ensured the best for the public school system.

Summary of BCPVPA related findings in relation to 21st Century Learning

The most significant role that the BCPVPA had played in the conversation about 21st Century Learning is its contribution of the "Learning in the 21st Century" document via the Students' Voice platform organized by the BCPVPA. The event gathered the views of Grade 10-12 students on 21st Century Education. The document culminating from the event inserted the important voice of students as they weighed in on the issue of 21st Century Learning that directly impacts them (which will be elaborated under the *Students* section of stakeholder analysis). Otherwise, BCPVPA is generally implicitly supportive of the move towards 21st Century Learning and Personalized Learning. This is reflected through the articles it publishes in its newsletter, the "admininfo", which writes from the premise of alignment and support of 21st Century Learning rather than challenging the issue (BCPVPA, 2009, BCPVPA, 2011c). The support of the BCPVPA can also be inferred from some of the presentation topics regarding 21st Century Learning included in its annual "Connecting Leaders: Learning for Changing Times (CLLCT)" conference in 2011 and for the one scheduled for October 2012 (BCPVPA, 2011b, BCPVPA, 2012).

Perhaps the greatest potential dissension of the BCPVPA in relation to the BC Education Plan would be its position that the FSA could no longer serve its purpose for the following reasons (BCPVPA, 2011a):

- The misuse of the data by the Fraser Institute to rank schools. The Fraser Institute's use of the data does not reflect the many unique challenges faced by individual schools, nor does it credit the many unique successes of individual schools.

- Although the Ministry insists that writing the FSA is mandatory, the BCTF has successfully undermined participation in many districts and, in some districts, the participation level is less than 50%. The low participation rates mean that the data collected is not sufficiently reliable to be used for district and provincial goal-setting.

- The understandable lack of effort many students put into the tests.

This is an area of potential dissension to the BC Education Plan because it contradicts the proposed policy option of "high standards", which relies on provincial-wide assessments as

one of the safeguards. As was implied in the news release, the BCPVPA is not opposed to government needing to look for a standardized testing measure as a health check of the education system. The news release concluded by calling for all parties to have a meaningful discussion about assessment in BC in which politics are put aside in the best interest of the students of BC (BCPVPA, 2011a).

The following table summarizes findings from BCPVPA's documents that related with 21st Century Learning and Personalized Learning:

Table 7: BCPVPA on 21st Century Learning and Personalized Learning

Event	Description
"Admininfo" BCPVPA Journal, June 2009 (BCPVPA, 2009)	The June 2009 issue of the BCPVPA newsletter was dedicated to the theme of Learning in the 21st Century. It featured an article by Ministry officials Virginia Rego and David Gregg on how technological advancements have offered both challenges and opportunities for teaching and learning taking into the view of students as digital natives. The views expressed are aligned with that contained in the PTC Report (2010).
Student Voice, May 2010 (BCPVPA, 2010)	BCPVPA sponsored report on Student Voice which summarised the views of students on their vision of learning in the 21st Century was published.
Learning Roundtable with Minister MacDiarmid, 4 June 2010 (BCEd, 2010a)	BCPVPA President Marilyn Merler and President Elect Jameel Aziz, reflected to Minister MacDiarmid that change for 21st Century Learning will require unlocking structures that are in place through collective agreements. They expressed a need to be involved in the early discussions as the details are considered. President Merler later reflected positively to the association's members about the institution of the dialogue at the ministerial level that involved all education partner groups on the 21st Century Learning agenda (Steffenhagen, 2010a).
BCPVPA Press Release on FSA, 19 January 2011 (BCPVPA, 2011a)	BCPVPA President Jameel Aziz stated that the FSA, though not flawed as a standardized assessment instrument by itself, was no longer able to perform its function.

BCPVPA Connecting Leaders: Learning for Changing Times Conference, 21-22 October 2011, (BCPVPA, 2011b)	The CLLCT conference included sessions on 21st Century Learning and personalized learning.
"Admininfo" BCPVPA Journal, October 2011 (BCPVPA, 2011c)	Article by principal Deborah Koehn which drew on the work of Network of Performance-based schools. The article reflected how provincially developed BC Performance Standards had been employed as a useful tool to help educators enable personalized learning by ensuring that students are learning, that teachers are learning about students' learning and that parents may access the learning that is taking place in a language understood by all parties.
BCPVPA Connecting Leaders: Learning for Changing Times Conference, 18-20 October 2012, (BCPVPA, 2012)	The CLLCT conference scheduled for October 2012 will continue to include sessions related to 21st Century Learning and personalized learning.

The position of the BCPSEA with regard to 21st Century Learning and personalized learning is aligned with that of the Ministry, as can be inferred from its presentations and publications. At the December 2010 BCSTA Trustee Academy pre-conference session presentations, BCPSEA argued for change demanded by "21st Century Learning and Personalized Learning" as a basis for discussing the human resources and labour relations of the education system with the trustees (BCSTA, 2010c). In its publication "Teacher Compensation: 2011 Context & Consideration" (BCPSEA, 2011b) on 16 May 2011, BCTF's objection to 21st Century Learning was specifically listed down as part of the backdrop surrounding the collective bargaining of teacher compensation, though how the former impacts on bargaining was not articulated. The BCPSEA resource website also features research articles collated from various sources, including the 2011 PTC Report, on the theme of 21st Century educational changes. Other articles included have such titles as "Developing Classroom websites for the 21st Century Learning" and Integrating Technology into K-12 Teaching and Learning". The selection of articles reflects the positioning of BCPSEA on the issue.

Table 8: BCPSEA actions related to 21st Century Learning and Personalized Learning

Publication	Description
BCPSEA presentation during BCSTA Trustees Academy, 8-10 December 2010, (BCSTA, 2010c)	BCPSEA (Hugh Finlayson, CEO, BCPSEA, Jacquie Griffiths, Associate Executive Director, Mike Roberts, seconded superintendent) delivered a presentation on *21st Century Learning – Can it Succeed in 20th Century Structures?"* to the trustees. The presentation explored the human resources (HR) and labour relations (LR) structures and practices BC school districts needed to ensure the success of 21st century learning (details unspecified). BCPSEA explored with trustees how the anticipated implementation of 21st century learning practices will require the rethinking and retooling of current LR and HR structures and practices. It also provided an overview of how new instructional practices will influence changes to current policies and collective

	agreement language and concluded with a consideration of implications for upcoming collective bargaining. Other conference materials given out included a information sheets that compared 20th Century to 21st Century classroom as well as presenting 21st Century skills.
BCPSEA publishes "Employment in Transformational Times — or Change as Usual?", 12 May 2011, (BCPSEA, 2011a)	The publication summarized two dominant views on the need for change in education using mainly arguments from the December 2010 PTC Report and from the BCTF publication on "21st Century Learning: Widening the frame of focus and debate: A BCTF Discussion and Debate Paper" as reasons for change and reasons to question change respectively. The former argues for change to fit the needs of the knowledge economy while the latter challenges the basis of that at the same time of presenting alternative discourses on 21st Century Learning.
BCPSEA publishes "Teacher Compensation 2011 Context & Consideration", 16 May 2011 (BCPSEA, 2011b)	This discussion paper listed BCTF's objection of 21CL as part of the backdrop surrounding the collective bargaining of teacher compensation (without an articulation of why it is relevant to the bargaining process).

<u>**Summary of BCCPAC related findings in relation to 21st Century Learning**</u>

This study did not uncover many documents relating to the BCCPAC position with respect to personalized learning or the BC Education Plan. From the documentary analysis, the BCCPAC demonstrated its earliest awareness of personalized learning in March 2010 when it used the notion as an argument in a letter to the Minister of Public Safety and Solicitor (BCCPAC, 2010). In the letter, it strongly recommended that the government consistently apply its existing Gaming Policy and Enforcement Branch guideline to provide gaming revenues of $40 per student per year to all PACs to offset the increased pressure parents and PACs faced in funding student learning opportunities and equipment to meet the needs of personalized learning for the 21st Century. In June 2010, BCCPAC then Acting President Ann Whiteaker reflected to the Minster through the Learning Roundtable the tension in parent-school collaboration that could be improved (BCEd, 2010a). This could be an area of concern especially since the BC Education Plan envisions a more active role of the parent in their children's education. Overall, it would appear that the BCCPAC is in principle supportive of 21st Century Learning but is of the view that it should be developed through engagement with all education partners (BCCPAC, 2011). It can also be inferred that BCCPAC is in the learning phase of understanding what personalized learning entailed, as evident through the inclusion of an article about it in its Fall 2011 Newsletter to educate parents (Hopkins, 2011).

<u>**Table 9: BCCPAC on 21st Century Learning and Personalized Learning**</u>

Document	Description
Letter to Minister of Public Safety and Solicitor General, 31 Mar 2010 (BCCPAC, 2010)	Letter to Minister of Public Safety and Solicitor General on game funding for students as aligned with "personalized learning".

Learning Roundtable with Minister MacDiarmid, 4 June 2010 (BCEd, 2010a)	In response to Minister's overview of 21st Century Learning, BCCPAC Acting President Ann Whiteaker and Director Deborah Garrity reflected to the Minister that tension still exists between schools and parents that are often based in conflict and that the education of all is needed.
BCCPAC letter to BCSTA, 25 Aug 2011 (BCCPAC, 2011)	BCSTA sent BCCPAC a letter regarding the resolution passed at its AGM to work with the Ministry and all education partners to remove barriers to 21st Century Learning that may impede the implementation of innovative strategies through a consultative process. BCCPAC responded on 25 Aug 2011 and suggested that the forum involving presidents of the various education stakeholder groups should be revived as it provided a viable platform to foster understanding about the barriers each organization faced. To date, there has been no evidence of a revival of such a meeting.
BCCPAC Newsletter – Our Voice, Fall 2011 (Hopkins, 2011)	Newsletter article by superintendent Jeff Hopkins of District 64 introducing the notion of personalized learning to readers that is mainly aligned with the "Personalized Learning in BC: Interactive Discussion Guide". The article touches on the importance of competencies, teacher as facilitator, greater interest-driven, self-directed learning with age and the decreasing primacy of school as a place for learning but more a basecamp for learning. Hopkins also referred readers to the interactive discussion guide for more information. Note: School district 64 was previously referred to as a district that had put into practice many of the 21CL principles from John Abbott in the "Report on Education from the Deputy Minister of Education" on 7 May 2010.

Table 10: Summary of students' conceptions of "Learning in the 21st Century" from the Student Voice exercise at the 2010 Spring Student Voice (BCPVPA, 2010)

Conceptions of Learning

Area	Description
Personalized Learning	The vision is one where students shift from "education receivers" to "education consumers". Students envision learning to be highly individualized in terms of being driven by student interest, skills and ability. Thus, "some students start at a younger age and finish earlier". Also, there will be no mandatory curriculum as learning is directed by interests and skills level. Education will consequently be highly relevant, productive and efficient.
Authentic, hands on learning opportunities	An "apprenticeship model of learning" will characterise 21st Century Learning where the practical prevails over the theoretical. Thus, much of learning will occur outside a classroom through, for example, field trips.
Highly technological	Students make the natural assumption that technology will feature prominently in their learning. They foresee a highly digital, paperless learning environment without need for textbooks, notebooks, binders, school lockers and libraries. They envision electronic libraries, I Pad devices and lessons that could be downloaded. Because of technological advances, the global community would become a ready learning resource that could be tapped. Instantaneous translators will allow all students immediate access to the latest research regardless of country of origin.

Conceptions of Teachers and Teaching

Area	Description
From "giver of knowledge to mentor"	"The internet holds the information that students want, and the teacher would serve as a guide to unlock the process of finding the required resources.
Robotic lecturers and online tutors	Robotic versions (using artificial intelligence) of the traditional teacher would be used for learning formats that did not require student responses and inputs. Students will access online tutors when they experience difficulties in their work.

Conceptions of Schooling

Area	Description
Diminished primacy of school as place of learning	Because of the easy access to information anytime and anywhere and the change of teachers from content dispensers to mentors, the need for school and the classroom as a physical place for learning is reduced.
Hub for building connections	Because of the increasing use of local and global communities outside of school as learning resources, future schools might serve as a "hub for connection between students and experts". They will be more like "town centres or even shopping malls where people of all ages and interests gather to share or exchange knowledge".

Elaboration on Domains of Education (Goh, 1998, pp. 1)

(A) Moral Development

The education system must teach children from young to tell right from wrong. As they move up the education ladder, they must increasingly exercise their moral judgment and stand up for what is right. In partnership with the home, education must carefully and painstakingly shape the moral make-up of the young.

(B)Cognitive Development

The education system must train children to think for themselves. Beyond the mastery of a core set of knowledge, children have to learn how to think and apply the knowledge and skills they acquire. They have to develop a lifelong habit of thinking and learning.

(C)Physical Development

The education system must nurture children to be robust both physically and mentally. Healthy lifestyle, fitness, life-skills and pastoral programmes are aimed at building strong bodies and minds.

(D)Social Development

The education system must also help students learn to relate to people of all stations in life, colour or creed, and people who may be like-minded or different. Everyone lives within a community. It is important to know how to live and interact with people of different backgrounds, abilities, and temperaments. It is also important to learn to value the contributions of others. A child has to be imbued with the skills to understand the needs of others. How well students do these will determine the collective success of the society.

(E)Aesthetic Development

The education system needs to develop the sense and sensibility of the young so that they can understand and appreciate things of beauty, and better still, to create them. In emphasising Science and Technology, aesthetic pursuits must not be neglected. Students should have the breadth of perspective and sensitivity that will give balance and provide the ability to cross-fertilise ideas from different disciplines.

<u>Table 1: Summary of 21st Century Student Outcomes by Partnership for 21st Century Skills (2009).</u>

P21 Framework for 21st Century Student Outcomes	Description
Core subjects that weave 21st Century interdisciplinary themes into the academic coursework	Core subjects include i. English/Reading/Language arts, ii. World Languages iii. Arts iv. Mathematics v. Economics vi. Science vii. Geography viii. History ix. Government and Civics. 21st Century interdisciplinary themes include i. Global Awareness • Using 21st century skills to understand and address global issues. • Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts. • Understanding other nations and cultures, including the use of non-English languages. ii. Financial, Economic, Business and Entrepreneurial Literacy • Knowing how to make appropriate personal economic choices. • Understanding the role of the economy in society. • Using entrepreneurial skills to enhance workplace productivity and career options. iii. Civic Literacy • Participating effectively in civic life

	through knowing how to stay informed and understanding governmental processes.
	• Exercising the rights and obligations of citizenship at local, state, national and global levels.
	• Understanding the local and global implications of civic decisions.
	iv. Health Literacy
	• Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that enhance health.
	• Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction.
	• Using available information to make appropriate health-related decisions.
	• Establishing and monitoring personal and family health goals.
	• Understanding national and international public health and safety issues.
	v. Environmental Literacy
	• Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems.
	• Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
	• Investigate and analyze environmental

	issues, and make accurate conclusions about effective solutions. • Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

Learning and Innovation Skills	These include:
	
	iv. Creativity and Innovation
	    d. Think creatively
	    e. Work creatively with others
	    f. Implement Innovations
	
	v. Critical Thinking and Problem Solving
	    e. Reason effectively
	    f. Use Systems Thinking
	    g. Make judgments and decisions
	    h. Solve problems
	
	vi. Communication and Collaboration
	    c. Communicate clearly
	    d. Collaborate with others

Information, Media and Technology Skills	They include:
	iv. Information literacy
	    c. Access and evaluate information
	    d. Use and manage information
	
	v. Media literacy
	    c. Analyze media
	    d. Create media products
	
	vi. ICT (Information, Communications and Technology) Literacy
	    • Apply technology effectively

Life and Career Skills	They include:
	vi. Flexibility and adaptability
	    c. Adapt to change
	    d. Be flexible
	
	vii. Initiative and self-direction
	    d. Manage goals and time
	    e. Work independently

	f. Be self-directed learners

	viii. Social and cross-cultural skills
	   c. Interact effectively with others
	   d. Work effectively in diverse teams
	
	ix. Productivity and accountability
	   c. Manage Projects
	   d. Produce Results
	
	x. Leadership and responsibility
	   c. Guide and lead others
	   d. Be responsible to others

Table 2: Summary of 21st Century Student Outcomes by enGauge (NCREL & The Metiri Group, 2003)

Digital-Age Literacy	Basic scientific, economic and technological literacies Visual and information literacies Multicultural literacies and global awareness
Inventive Thinking	Adaptability, managing complexity and self-direction Curiosity, creativity and risk taking Higher-order thinking and sound reasoning
Effective Communication	Teaming, collaboration and interpersonal skills Personal, social and civic responsibility Interactive communication
High Productivity	Prioritizing, planning and managing for results Effective use of real-world tools Ability to produce relevant, high quality products

Table 3: Summary of 21st Century Student Outcomes by OECD DeSeCo Project (OECD, 2005)

Using tools interactively	Use language, symbols and texts interactively Use knowledge and information interactively Use technology interactively
Interacting in heterogeneous groups	Relate well to others Cooperate, work in teams Manage and resolve conflicts
Acting autonomously	Act within the big picture Form and conduct life plans and personal projects Defend and assert rights, interests, limits and needs

Table 4: Values at the Core of 21st Century Competencies from "Nurturing our Young for the 21st Century" (SMOE, 2010a)

Respect	A child demonstrates respect when he believes in his own self-worth and the intrinsic worth of all people.
Responsibility	A child is responsible if he recognizes that he has a duty to himself, his family, community, nation and the world, and fulfills his responsibilities with love and commitment.
Integrity	A child is a person of integrity if he upholds ethical principles (unspecified) and has the moral courage to stand up for what is right.
Care	A child is caring if he acts with kindness and compassion, and contributes to the betterment of the community and the world.
Resilience	A child is resilient if he has emotional strength and perseveres in the face of challenges. He manifests courage, optimism, adaptability and resourcefulness.
Harmony	A child values harmony if he seeks inner happiness and promotes social cohesion. He appreciates the unity and diversity of a multicultural society.

Table 5: Social and Emotional Competencies from "Nurturing our Young for the 21st Century" (SMOE, 2010a)

Self-Awareness	A child has self-awareness if he understands his own emotions, strengths, inclinations and weaknesses.
Self-Management	A child can manage himself effectively if he has the capacity to manage his own emotions. He should be self-motivated, exercise discipline and display strong goal-setting and organizational skills.
Social Awareness	A child has social awareness if he has the ability to accurately discern different perspectives, recognize and appreciate diversity, empathize with and respect others.
Relationship Management	A child can manage relationships effectively if he has the ability to establish and maintain healthy and rewarding relationships through effective communication, and is able to work with others to resolve issues and provide assistance.
Responsible Decision-Making	A child can make responsible decisions if he has the capacity to identify and analyze a situation competently. He should be able to reflect upon the implications of decisions made, based on personal, moral and ethical considerations.

Table 6: 21st Century Competencies "Teaching and Learning of 21st Century Competencies in Schools" (SMOE, 2010d)

Civic Literacy, Global Awareness Cross-Cultural Skills	Active Community Life National and Cultural Identity Global Awareness Socio-Cultural Sensitivity and Awareness
Critical and Inventive Thinking	Sound Reasoning and Decision-Making Reflective Thinking Curiosity and Creativity Managing Complexities and Ambiguities

Information and Communication Skills	Openness Management of Information Responsible use of information Communicating Effectively

Table 7: PAM related policies that support 21st Century Competencies

Measures	Description
Increase pool of PAM teachers (Tan, 2010)	Efforts will be made to increase the recruitment of PAM teachers.
Strengthen the capacity of PAM teachers (Tan, 2010)	The Physical Education and Sports Teacher Academy (PESTA), the Singapore Teachers' Academy for the Arts (STAR) were set up to enhance the professional development of PAM teachers.
Single subject specialization of PAM teachers (SMOE, 2010b)	To enhance the delivery of the Art and Music curriculum, all new Art and Music teachers will be trained for single-subject specialisation, i.e. only in Art or Music. They will focus on teaching either Art or Music, and handle Art or Music related co-curricular activities and programmes. Existing Art and Music teachers will also move towards single-subject specialisation.
Introduction of curricular changes that promote PAM (SMOE, 2009, Heng, 2012)	PE curriculum time will be increased for all primary and secondary school students. A new, core sports syllabus will be developed within the PE curriculum. As important education partners, all sports coaches will also be trained on how to deliver values and character education in their coaching with students by 2015. The Programme for Active Learning (PAL) was introduced to give greater exposure for all primary school pupils to sports and outdoor education as well as performing and visual arts for a more well-rounded education.
Enhancing school infrastructure for PAM education (SMOE, 2010b)	MOE will provide infrastructure and facilities to facilitate PAM education in schools, such as Indoor Sports Halls and synthetic turf fields. Primary schools will be provided with two PAL rooms, a performing arts studio, a dance studio, a band room and an outdoor running track.

Table 8: ICT Masterplans (SMOE, 2008b, SMOE, 2011b)

ICT Masterplan 1	1997-2001	Building the foundation	ICT infrastructure in school was lacking and a significant proportion of teachers were not comfortable using ICT. Thus, a centralised approach was taken to scale up ICT capacity in all schools and baseline competence in all teachers. Targets were set for ICT-enabled lessons for up to 30% of curriculum time. ICT became an accepted tool for teaching and learning.
ICT Masterplan 2	2002-2008	Seeding innovation	With the basic infrastructure in all schools, greater autonomy and devolved funds were provided for schools to decide how best to integrate ICT into teaching and learning based on the specific needs of their students. Schemes were also rolled out to generate innovative practices by encouraging schools to forge ahead in technology use and to share successful practices. This resulted in 15-20% of schools becoming "Lead-ICT" schools and 5% as "Future Schools". At the same time, baseline ICT standards for students were introduced as a resource to guide implementation.
ICT Masterplan 3	2009-2014	Strengthening and Scaling	The broad strategies of the third Masterplan for ICT in Education are: • To strengthen integration of ICT into curriculum, pedagogy and assessment to enhance learning and develop competencies for the 21st century; • To provide differentiated professional development that is more practice-based and models how ICT can be effectively used to help students learn better; • To improve the sharing of best practices and successful innovations; and • To enhance ICT provisions in schools to support the implementation of mp3.